

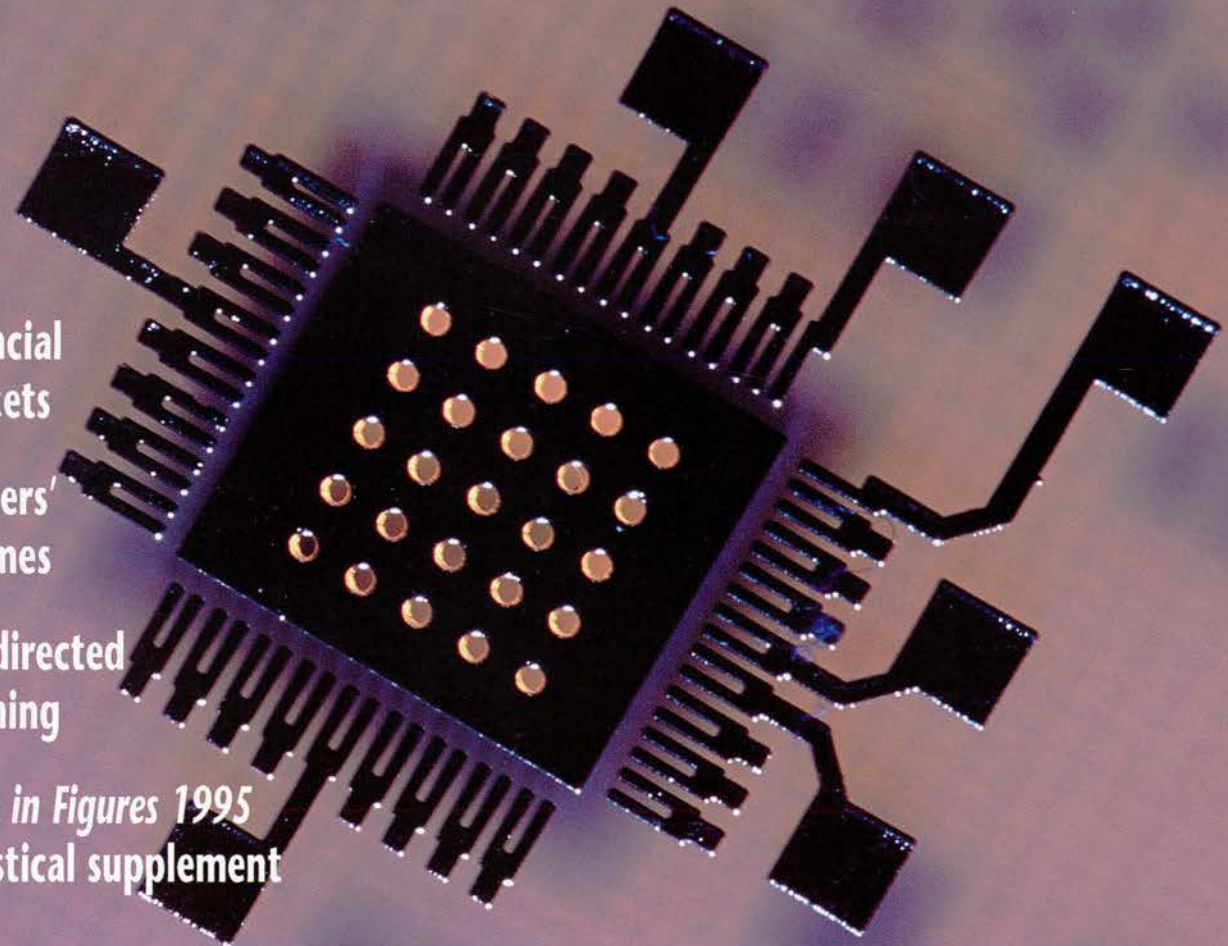
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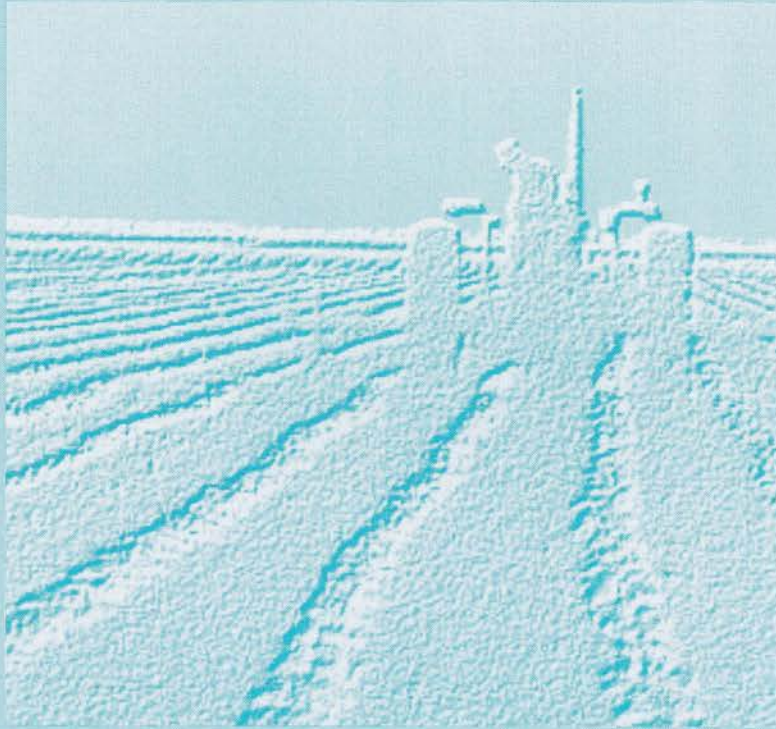
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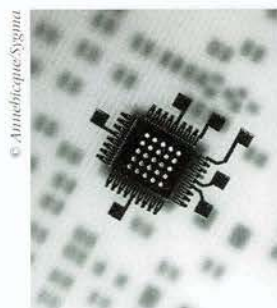
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Does the revolution in information technology pose a large-scale threat to employment? The lessons from history and from economic analysis alike are that, although some aging industries will encounter problems, technological change promises higher employment and wages across the economy as a whole.

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Technology, Employment and Structural Change

Jean-Claude Paye, Secretary-General of the OECD

Growth and employment depend crucially in the long run on the capacity of economies to generate and make the most effective use of scientific and technological knowledge – this was one of the main themes in the OECD Jobs Study. The gains in efficiency from the introduction, diffusion and continuous improvement of new production processes are one of the major factors behind the secular rise in real wages in OECD economies. And throughout history the emergence of new activities has been a major factor in the creation of new employment.

But over the past two decades, which have been characterised by high and persistent unemployment in many OECD countries and growing wage inequality in some, the 'destructive' part of the 'creative destruction' involved in the process of structural change has often been the most visible. Many people associate technical change, combined with increasing international competition, with widespread loss of jobs and the growing unemployment of workers with superseded skills. Moreover, technology, and in particular information and communication technology, is held responsible for increasing disparities in incomes and for job insecurity.

There is thus a gap between the confidence of economists, businessmen and policy-makers in the continuing historical record of growth and employment associated with new technologies and the view of large parts of the general public, who are more sceptical about the opportunities for growth and demand that new technologies offer and who may be more directly affected by the employment displacement and job insecurity associated with their introduction. These adjustment

problems raise major policy challenges for OECD countries and underline the importance of further assessment of the links between technology and jobs.

Four issues dominate the current debate and give rise to many questions. First and foremost, there is growing concern about the nature of the jobs being created and destroyed after the introduction of new technologies and the accompanying distribution of benefits and costs across the workforce. The decline in demand for unskilled labour has been so dramatic that unemployment and/or falling relative wages have affected a very large part of the lower-skilled elements of the labour force. How does the introduction of new technologies interact with the historical trend in the distribution of skills in society? What kinds of skill become redundant, and what kinds are in demand? How can education and training systems respond to the demand for new skills?

Second, there are questions about the actual productivity gains associated with the introduction of new technologies. Has the relationship between technical change, productivity growth, wages and employment shifted over the past two decades, and what has been the role of the service sector in this process? Do high-productivity sectors create more jobs than low-productivity ones? To what extent can technical change be characterised as labour-saving, and has this differentially affected job creation among sectors? What are the international implications? Are some countries benefiting from technical change more than others in terms of job creation, and what are the major factors, such as domestic and foreign demand, that

affect these employment gains? The first article in this issue of The OECD Observer addresses some of these questions.

Third, there are questions regarding the new demands arising from the use of new technologies, particularly in sectors where markets might fail or be wrongly regulated. Are existing regulations preventing competition in product markets and the emergence of new goods and services, or is it rather the case that firms are deterred from experimenting with potential areas of new demand because of risks which are too high? For example, it is commonly agreed that telecommunications regulation must adapt to the changing circumstances of technical advance and increasing competition. Regulatory reform and removal of many restrictions to market entry are essential for the development of appropriate information infrastructures and associated applications and services, which are widely regarded as important sources of future demand and employment. These issues of regulation and growth are important world-wide and are illustrated in this issue of The OECD Observer by a case study of Mexico, the newest member country of the OECD.

Fourth, there are questions about the required organisational changes within firms: in the organisation of work (flexibility, 'multi-skilling', job security, and so on); in the organisation of production ('lean' production, 'downsizing', flexible specialisation); and in the learning capacity of firms (knowledge acquisition, the role of complementary assets) and the like. There is also the question about the actual and potential creation of employment in small and medium-sized businesses, and particularly the role of technology in this process and the relative role of high-technology businesses.

These developments have important implications for technology and innovation policy and for broad policies affecting business and industry. The most pertinent direction for policy centres on the development of human capital. Although there are, overall, no single lines of change in education and training policies related to technology and business requirements, we are witnessing a period of widespread experimentation aimed at shifting education and learning closer to work requirements. This period of experimentation involves attempts to provide students with a broader range of competences so as to underpin continuous life-long learning, and to couple this with more applied 'just-in-time' learning, expanded opportunities for work-based learning, and education and training to encourage entrepreneurship.

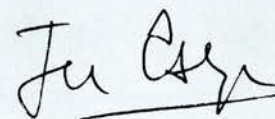
Much of technology policy nonetheless still focuses on the generation of industrial technology in large manufacturing firms. There may be considerable scope for improving long-term economic performance by shifting the policy balance towards broad diffusion of information and knowledge, not least to smaller firms, to complement policies aimed at technology generation. Initiatives in this area have been taken in some countries, but more efforts could still be undertaken. A further 'rebalancing' of technology policy is required to make its objectives more coherent with other policies, including those which affect employment and human capital. The second article discusses some of these

interlinkages between financial and innovation systems and the pressures to make them mutually more efficient.

The desire to strengthen the links between technology policy and other areas of government policy are apparent in the re-examination of competitiveness and related policies which are underway in most large OECD countries (including Canada, Germany, the United Kingdom and the United States) as well as in some smaller OECD countries. Long-run economic and employment performance can be improved if there is a deeper involvement in technology development and diffusion of all the actors concerned: on the one hand the science and technology sector and on the other hand the innovation system as a whole (business firms of all sizes and sectors, research centres, universities, the financial sector and technology users). This process will be supported if there are strengthened market mechanisms and enhanced competition in product markets and if countries re-examine the incentives and institutions which influence corporate behaviour and public provision of goods and services.

More generally, policy should focus on decreasing the costs and increasing the benefits from change associated with the introduction of new technologies and related industrial re-organisation. This includes lowering the costs of transition and dealing with market failures as well as reducing the costs associated with the long learning phases involved. Three areas of policy are important: first, technology and business-oriented training and skill formation for excluded people and groups affected by changing skill requirements; second, modification or elimination of regulations which slow the adoption of new technology and organisational forms (for example, in labour regulations and public procurement); and third, enhancing the business infrastructure (such as increasing the diffusion of information on best practices, where many countries have recently taken initiatives, and improving accounting for human capital).

These policy questions are being raised within an increasingly globalised economic environment. The OECD has an important role to play in this process by spreading an understanding of the function of technology in economic growth, and devising broad policy guidance to maximise the benefits and minimise the costs of technological change. Two current activities serve to illustrate the OECD's work in this area. First, the meeting of the Committee for Scientific and Technological Policy at Ministerial level in September 1995 will in part focus on the links between the science system and human resources. Second, the work of the Organisation on technology and employment in conjunction with the G7 should help reinforce the beneficial impacts of technological change.



Technology and Jobs

George Papaconstantinou

Technological change is at the heart of the debate about the current high volumes of unemployment. Many people hold new technologies responsible for the extensive job losses in a wide range of industries as well as for the growing wage-gap between skilled and unskilled workers. Yet economists have long recognised that technological change – the creation of new products or the adoption of more efficient methods of production – is central to the process of growth and employment creation. It is what allows increases in productivity and in real incomes.

Economic theory suggests that the impact of technology on employment is the outcome of two opposing forces. On the one hand, innovations in process, such as the introduction of labour-saving machinery and equipment, reduce the demand for labour per unit of output. On the other hand, they improve productivity, allow lower prices, and thereby increase wages, profits and incomes, which are then translated into higher demand for workers. At the same time, innovations in product – the creation of new products or services – directly increase employment, as they increase the demand for these new products.

The question therefore of whether, on balance, technology creates more jobs than it destroys is one of whether the indirect – compensating – beneficial effects through higher

productivity and incomes are stronger than the job-displacement effects of the initial introduction of new technologies. History suggests that this pay-off between loss and gain has always obtained: in the industrialised world, although some unemployment has always accompanied new technology, the additional jobs created directly and indirectly have been sufficient not only to replace those lost but also to expand employment substantially.

Time and again, subsequent developments have confounded predictions of an emergence of large-scale technological unemployment. In the 1820s, for example, many commentators were arguing that the increased productivity from the introduction of machinery in the United Kingdom would reduce employment. Over the half-century that followed, both wages and employment increased. Similarly, fears about widespread job losses in the United States from the invention of the computer in the 1940s have been confounded by higher wages and no appreciable rise in unemployment.

But the beneficial long-term effects of technology on employment must not overshadow current concerns about adverse effects in the short term, especially in individual sectors, regions and occupations. Whatever confidence one may have in the long-term adjustment process, both history and current developments suggest that short-term dislocations can be substantial – especially because adjustment takes time, and the industries and types of workers that will benefit from technical change are different from the ones that lose from it. Moreover, the events of the past are not always the best guide for the future. Indeed, many well-informed observers doubt whether even the long-term result will be beneficial and cite the nature of information technologies, increased international competition, and the severe impact of technology on low-skilled workers as reasons for their more pessimistic outlook.

Is IT Different?

Will the new information and computer technologies 'create technological unemployment on a scale that will make the Great Depression look like a picnic'?¹ Is there anything specific to their nature which in itself affects employment in a way which is distinct from earlier waves of technology? Compared with other new technologies, such as new materials and biotechnology, the combination of computer, micro-electronics and telecommunication technologies which has come to be known as 'information technology' (IT) is by far the one with the biggest economic impact. IT stands out in terms of its rapid and radical development, speed of diffusion and wide applicability to almost all parts of the economy – agriculture, manufacturing, business services such as banking, insurance and retail trading and public services such as health and education.

IT-based goods and services have diffused rapidly through economies, because their real prices have been dropping dramatically as their

1. Norbert Wiener, *The Human Use of Human Being: A Cybernetic Approach*, Houghton Mifflin, New York, 1949.

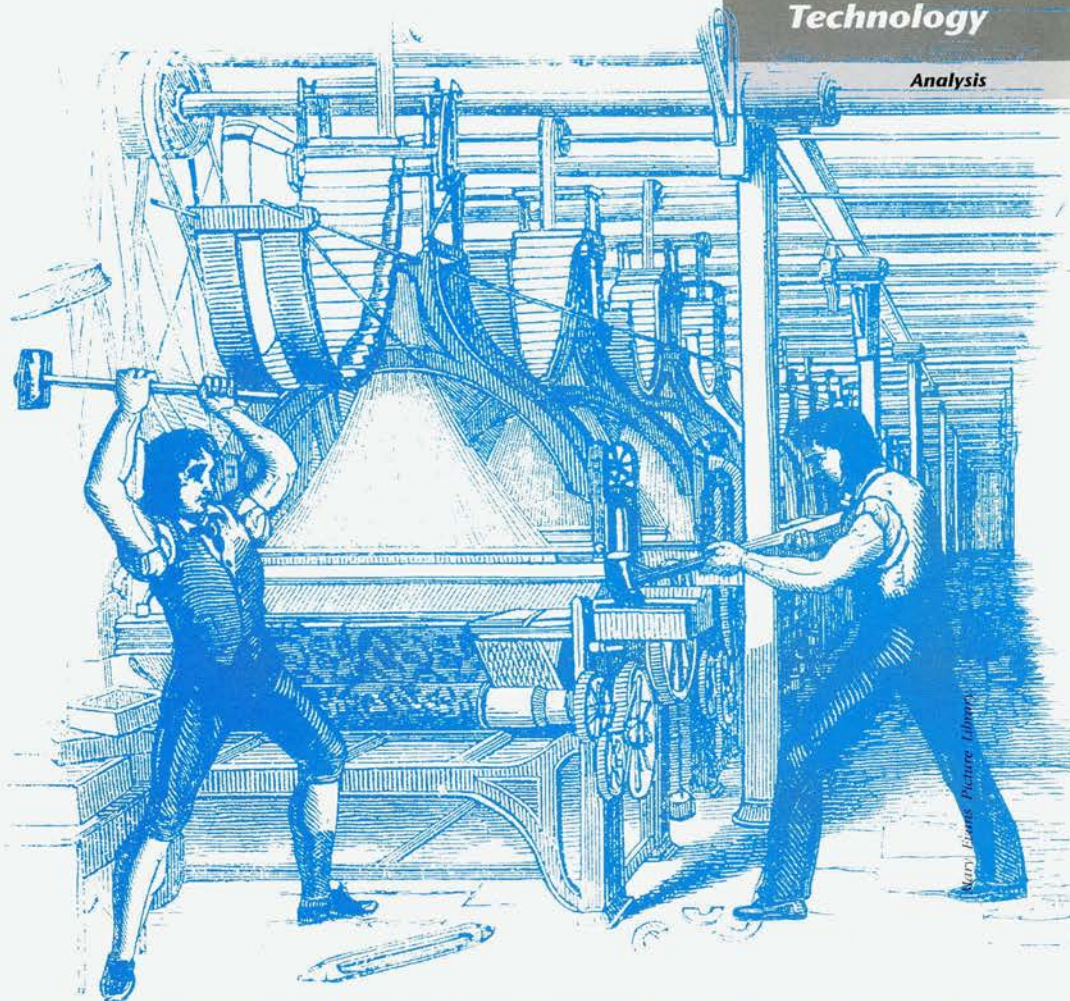
George Papaconstantinou works in the Economic Analysis and Statistics Division of the OECD Directorate for Science, Technology and Industry.

capabilities have been extended (IT systems have become cheaper, faster, and more powerful). Industries related to information technologies are the fastest-growing categories in world trade and production. Their high productivity has the potential to create economy-wide growth, employment and higher living standards. And the new products and applications that they give rise to create entirely new economic activities, such as multimedia, in some cases even changing the nature of work itself (as with the increased use of teleworking).

Nonetheless, IT has so far not created new jobs on a massive scale, while – despite conventional wisdom – also not destroying a large number of existing jobs. Except in some service activities, such as finance and insurance, and in the industries involved in the production of information-related equipment and services, the introduction of IT has not led to the expected economy-wide productivity gains, nor to a higher demand for new goods and services and to the associated new jobs. This is in large part because the efficient development as well as absorption of these new technologies take time and often call for substantial changes in work organisation, skill requirements and even the institutional and regulatory economic framework. In previous technological revolutions, several decades passed before the economic potential of the new technologies was fully translated into higher employment and wages.

International Competition

International competition is often invoked in connection with the impact of technology on employment and wages. Globalisation increasingly puts a focus on the technological dimension of international trade and on the importance that firms adopt international 'best practices'. The balance between the direct and the indirect, 'compensating' effects of technology on jobs is now determined to a large extent in international markets. Intensified international competition implies that improvements in productivity are no longer automatically translated



Again and again, history has given the lie to Luddites who fear widespread technological unemployment.

into higher wages and profits, and so the conditions for increased investment and job-creation are not always present. Simultaneously, the lower prices and wider variety of products that result from international competition stimulate demand and thus generate jobs.

But although intensified international competition poses new challenges for OECD countries, many studies have shown that technical change which appears through price pressure or new products from foreign competitors is far worse for employment than fast technical change which originates in leading domestic industries. The leaders in the continuing process of technological transformation are likely to enjoy more favourable employment and wage effects from investment in the new industries and enlarged market share than those countries which fail to innovate or to successfully adopt new technologies developed elsewhere.

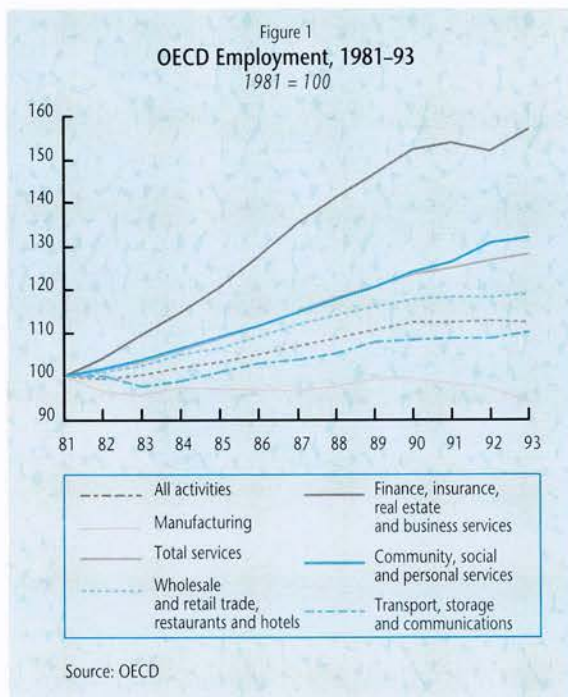
The product structure of economies is particularly important. Economies that are specialised in exporting products for which demand is growing on the world market – manufactured products, and in particular high technology ones – will obviously enjoy better effects in employment and wages. Worst off are countries characterised by an export specialisation in pro-

ducts addressed to stagnating markets (such as primary products or low-technology manufacturing goods). Countries in this category experience slow growth and have difficulties in creating enough new jobs. In this respect, the United States and – especially – Japan have an export specialisation that is better adapted to the increasing importance of high-technology goods in world trade. They have been more willing than European countries to develop or adopt new technologies and at the same time more successful in expanding employment.

Where Will the New Jobs Be?

Numerous empirical studies undertaken during the 1980s indicate that technological change cannot be held responsible for the high volumes of unemployment. Although for some firms or industries there are often job losses associated with the introduction of new technologies (just as there are job gains in other firms or industries), for the economy as a whole gains and losses cancel each other out. But the studies do emphasise the substantial job-displacement and wage-reducing effects that new

Technology and Jobs



and semi-conductors or aerospace (Figure 1). In manufacturing as well as in services, it is the knowledge-intensive sectors which have been expanding their employment more rapidly than the rest of the economy.

In manufacturing, the high-technology segment is too small to be expected to contribute much, and in a direct manner, to total employment in the future. But for economy-wide productivity and employment gains, technology diffusion is as important as technology development. Firms and industries which adopt efficiently and use extensively new technologies developed elsewhere (in other industries domestically or abroad) and employ highly skilled employees have been the most dynamic part of the job-creation process, accounting for a large part of all employment created in recent years while also paying

higher than average wages. In Canada, for example, such 'high-technology' and 'high-knowledge' industries, although accounting for only about a third of total employment, contributed more to employment growth than all other industries combined.

The trends in employment in the last twenty years suggest that it is in the services where most of the potential for employment gains lies: it is here that information technologies are becoming most widely diffused and are likely to have the largest impact. As elsewhere, IT has the potential of destroying jobs as restructuring and productivity effects transform this sector, but it also provides the potential for creating a large number of new jobs as new products and services are created. The strong employment gains in IT-intensive sectors such as finance and business services or in wholesale and retail trade are evidence of this job-creation potential (Figure 2).

Whether in manufacturing or in services, investments in innovation (on R&D, training, design, software, production start-up, market research and marketing) will increase demand and thereby create job opportunities.² As long as sales increase rapidly, such employment gains can persist in a period of rapid diffusion of an innovation. Firms which introduce labour-displacing techniques may therefore be able to create jobs whenever they are successful in combining such processes of technological change with product innovation and sound marketing policies.

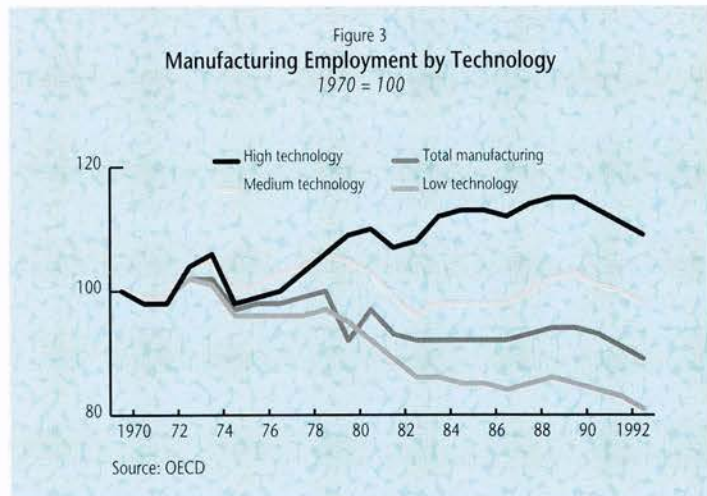
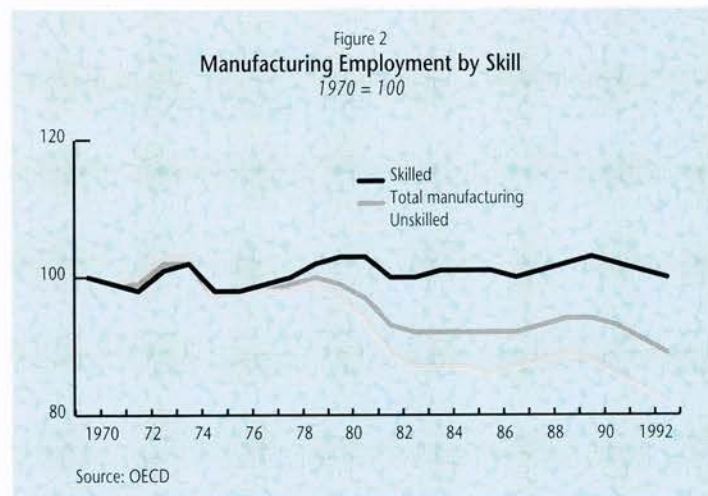
Skills and Organisational Change

It is becoming increasingly clear that the most important issues centre not so much on the im-

technologies are likely to bring about. In the last two decades, jobs have mainly been lost in the low-technology, labour-intensive part of manufacturing (such as the textiles or basic-metals industries), while the main sectors for employment growth have been the services and a few technologically sophisticated, high-wage, science-based manufacturing industries, such as computers and office machinery, communications

and

Source: OECD



pect of technology on the overall volume of unemployment, but instead on the impact of new technologies on the nature and organisation of work as well as on occupational structure and skill requirements of jobs. The introduction of new technologies changes skill requirements and by implication the distribution of jobs across different occupations.

It is not easy to measure skills.³ Most jobs in effect require a multitude of skills if tasks are to be performed adequately, ranging from physical abilities like eye-hand co-ordination, dexterity and strength, to cognitive skills (analytic and synthetic reasoning, numerical and verbal abilities) and interpersonal skills (leadership, supervision). Nevertheless, despite difficulties in measurement, many studies have concluded that, overall, computer-based new technologies tend to require lower standards of traditional skills and higher abstract and synthetic reasoning abilities. They thus seem to both increase the skill content and the share of high-skill jobs and to reduce the skill content and the share of low-skill jobs in economies, leading to an upgrading of skill requirements for the workforce as a whole (Figure 3).

New technologies usually require substantial organisational changes to be absorbed efficiently and thus call into question traditional work arrangements. Extensive restructuring and experimentation with modes of organisation which emphasise teamwork, network-building and continuous learning are currently taking place in both large and small firms throughout the OECD area. This change is testament to the efforts being made to adopt new ways of using production and communication technologies (such as 'lean production' techniques), and to develop different external supply and contracting relations. But organisational change can proceed only as fast

2. See pp. 10-16.

3. Danielle Colardyn and Marianne Durand-Drouhin, 'Recognising Skills and Competences', and Riel Miller and Gregory Wurzburg, 'Investing in Human Capital', *The OECD Observer*, No. 192, April/May 1995.



The sectors in industry and services, where employment has grown most, require advanced skills and training.

as the skills and abilities of the workforce are transformed.



How can governments help ensure that the job potential of new technologies is realised without large-scale job dislocation? First, the labour force has to have the mobility and skills in order to be able to move from the jobs eliminated to those created. That implies measures for continuous training and retraining, and a reform of education systems with the aim of providing people with the skills necessary in an information-based society.

Second, governments can help realise the potential that new information technologies have to create jobs. Policy here should be aimed at the continued liberalisation and openness of product markets, in manufacturing as well as in services, with the aim of increasing the incentives for widespread adoption and diffusion of IT and generating demand for new products and services. Measures can also promote the physical infrastructure which facilitates the diffusion of technology and support intangible investments which ease the implementation of technological and organisational best practices.

Finally, in view of the importance of knowledge to the future development of modern societies, it is increasingly necessary that international co-operation ensure that the burden of investment in generic knowledge be shared equally. International standards, rules for net-

work access and appropriate property rights will likewise become necessary as the international infrastructures for the applications of IT are developed. ■

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Financing Innovation

Jean Guinet

Interest in how innovation is financed has a long history. But the question now has to be defined in new terms, because of the impact of deregulation and globalisation of financial markets on the ways in which capital is allocated to productive activities. Simultaneously, the flourishing of information and communication technologies is precipitating the emergence of a new model of innovation. Does the confluence of these two developments offer only favourable prospects for innovation – or does it also involve risks? Does it undermine the efficacy of some aspects of government support for innovation and, more generally, call for an adjustment of other framework conditions of economic activity? These central issues have to be examined thoroughly in any consideration of the crucial role of innovation in economic development, both in stimulating growth and in determining competitive positions in the activities that produce most increases in income and employment.¹

A clear understanding of the factors that influence the dynamism and orientation of the innovation process is important for anyone concerned with the role of government in promoting job-creating growth in a context of growing competition in globalising markets. The financial dimensions of this issue evoke several questions:

- is the risk of underfinancing innovation-related investment shrinking or growing in the new financial environment?

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- are financial factors influencing the orientation of the innovation process, possibly encouraging a bias towards forms of technological innovation and diffusion that are less favourable to long-term growth of incomes and employment opportunities?

- are all countries equally exposed to these risks, or does it depend on the characteristics of their respective financial systems?

- is the globalisation of financial markets smoothing out international differences in financing conditions, thus reducing their importance as a factor of competitiveness?

To answer these fundamental questions a conceptual framework has to be adopted which is

broader than the one in which the problem of innovation financing is often placed and, as a result, incompletely addressed. First, innovation-related investment is not confined solely to spending on R&D; instead, it constitutes an indivisible package of tangible and intangible investment. It is this package that the innovator has to 'sell' to potential backers.

Second, one has to guard against over-generalisation, since it is the sheer variety of the forms that innovation takes – radical/incremental; directly based on new scientific knowledge/ingenious combination of existing technical solutions; result of systemic research on a large scale/within the reach of small firms – and of the sectors where it occurs – in manufacturing industry and services alike – that allows innovation to make such a rich contribution to economic development.

Not all forms of innovation pose the same financing problems. Some are easier to identify and therefore command more attention (for example, the role of government in compensating for the shortcomings of the financial markets with subsidies, tax reliefs or guarantees). Others are often left in the shade (for example, the importance of stimulating the development, or facilitating the operation, of particular mechanisms in the financial markets).

Third, the private and public circuits of innovation financing are themselves very diverse, and deregulation has stimulated a continuous flow of financial innovations which have to be better channelled towards support for technological innovation. In general, these financing circuits are not simply passive mechanisms of capital allocation with no influence on the content of innovation strategies. A good number of them also play an active part in the internal assessment of innovative projects and closely monitor the use to which the capital invested is put. Here the question of innovation financing is related to that of corporate governance, that is, the way in which the management and performance of firms is influenced by the pattern of their ownership and financing.

As always at a turning point in economic history – and the liberalisation and globalisation of markets is one – the facts go beyond the conceptual framework on which government policy

Mascobatti/REA



By creating a business, biotechnology researchers can bring 'pure' scientific expertise almost directly to the market.

is currently based. Both innovation and financial economics have made enormous progress during the past decade, but along parallel rather than convergent paths. It is nonetheless possible to outline the lines of eventual convergence in clarifying the challenges for policy-makers, who have to act without waiting for an integrated theoretical approach to mature.

Managing Risk, Creating Uncertainty

A financial system manages risk. It offers a combination of forms of capital investment in the productive system and procedures for assessing and assuming industrial risks, including those specific to innovation. It can thus

1. National Systems for Financing Innovation, OECD Publications, Paris, forthcoming 1995.

handle risk in the the form of the possibility of an unsuccessful outcome. But it is generally allergic to uncertainty, in the shape of the impossibility of knowing what contingencies could determine that outcome.

Yet innovation is a process which contains an irreducible element of uncertainty; it is an alchemy whose motivating forces (the spur of competition, quality of the infrastructure that allows access to knowledge and of corporate organisation, and so on) can be identified – but whose inner workings are difficult to perceive.

For instance, it would have been absurd to discuss before the event the risk to American science of not discovering the principle of the microchip, or to Philips of not succeeding in developing the compact disc after a costly and lengthy research effort. Uncertainty, moreover, is not merely a question of the difficulty of penetrating 'the mystery of creativity'; it also

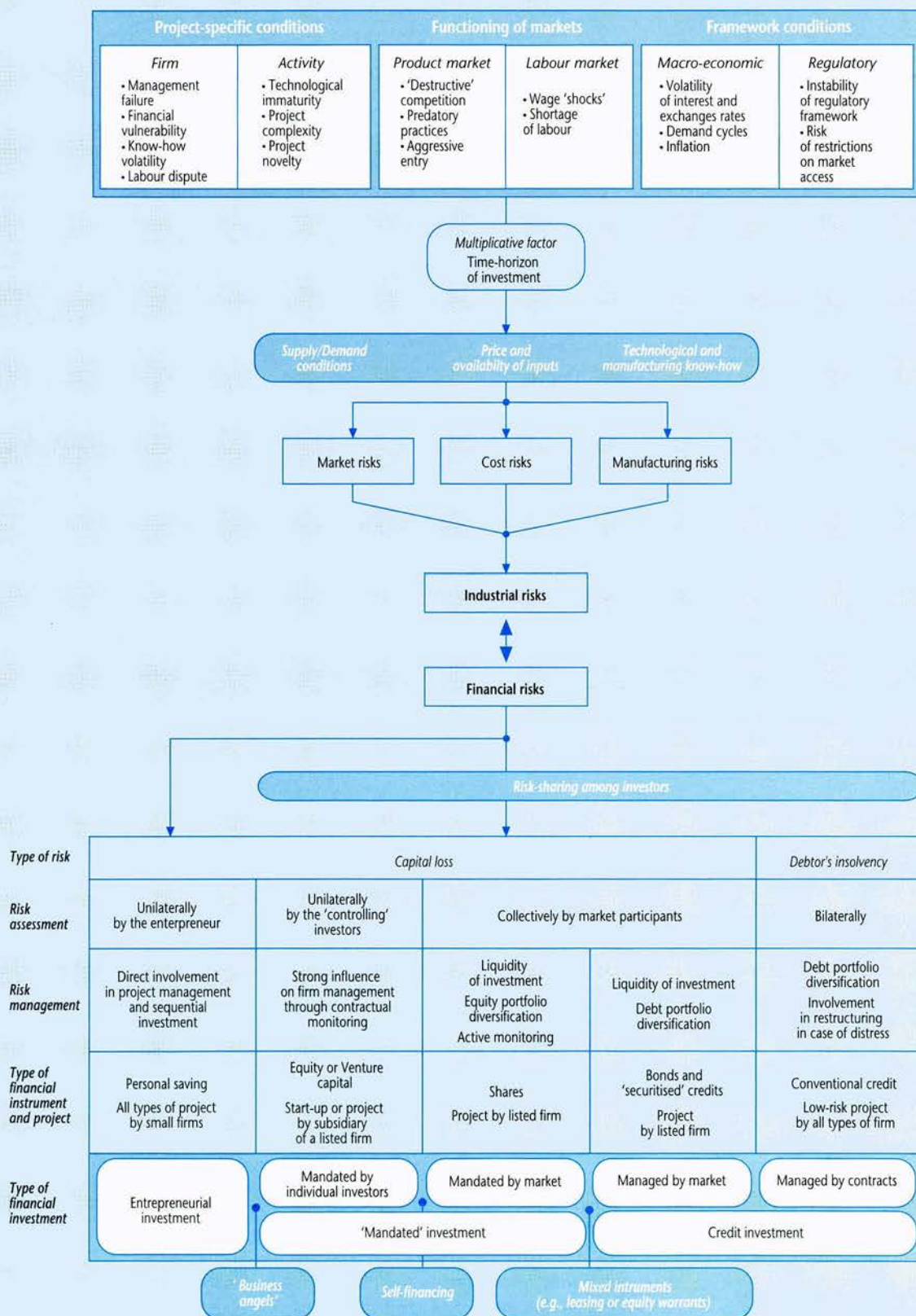
concerns the degree to which the investor can hope to appropriate the benefits of the innovation he is financing.

The Traditional Approach is Outmoded

In the traditional approach, the importance for the dynamics of investment of the links between the management of the firm, its financing structure and pattern of ownership (that is, the question of corporate governance) is neglected. Moreover, it is generally held that the variety of combinations of financing channels and innovation forms can be reduced to three modes of assuming the risks and uncertainties of innovation:

- government financing of the 'upstream' part of the innovation system in which the degree of

Figure
The Financial Management of Industrial Risks
The sources of industrial risks





MICROSOFT/SABA/REA

B. Stanley/SABA/REA

Microsoft might never have got off the ground without NASDAQ – the electronic stock-market quotation of firms with high potential for growth.

uncertainty about the economic viability of projects is highest (fundamental research and a part of pre-competitive research)

- self-financing of innovation-related investment, chiefly R&D, whose profitability is difficult for people outside the firm to assess
- external financing (by contributions to equity capital through financial markets or bank loans) in cases where the assessment criteria of financial institutions can be applied to the projects.

In this schema, government undertakes not only to finance the 'upstream' segment of the innovation process but also to compensate for market failures downstream by three types of action. First, there are the measures to increase

the self-financing capacity of firms and improve their incentives to invest in innovation; these range from corporate tax relief to subsidies or fiscal aids for R&D. Then there are measures to facilitate access for innovators to external financing, including loan-guarantees and interest-rate subsidies. Finally, there are the arrangements for protecting intellectual property, which are intended to lessen the deterrent to investment of less-than-complete 'appropriability' of the benefits of innovation.

But this view of the problems of financing innovation, and of the role of governments in solving them, is losing validity: it stems from an outmoded conception of innovation and takes

insufficient account of the profound changes occurring in the financial sector.

Changing Modes of Innovation

The 'linear' model of innovation, indeed, has become obsolete. Innovation can less and less be described as simply the conversion of scientific knowledge into economic value by successive stages, with separate groups of players acting independently of one another, and implying a clearly demarcated frontier between the world of the market and that where govern-

Financing Innovation

ment intervention takes place. Instead, innovation is becoming increasingly interactive, often simultaneously involving the different stages and players, including users. There are two consequences for financing.

First, more use has to be made of private finance (internal or external funding) for projects containing a share of pre-competitive or even fundamental research (in biotechnology, for example, researchers can create enterprises and thus bring purely scientific knowledge almost directly to market). That raises the question of how far the financial system can adapt its criteria of evaluation.

Second, the success of the individual innovator is coming to depend increasingly on his capacity to augment his own expertise through access to additional assets (patents, specialised equipment, consultancy services, and so on), the holders of which may be in a position to demand a share of the return on innovation. That

in turn compounds the problem for investors that they may not be able to appropriate all the earnings of their innovation, and it also increases the importance of the infrastructure for exchanging and sharing scientific and technical knowledge.

Financial Liberalisation a Partial Solution

Simultaneously, the financial sphere has altered radically through changes in the structure of savings (for example, the increasing weight of pension funds) and the even profounder change in the mechanisms by which savings are allocated. Three important developments have taken place: a desegmentation and diversification of channels of finance; financial innovation, which has made it possible to increase the negotiability of financing instruments (thus

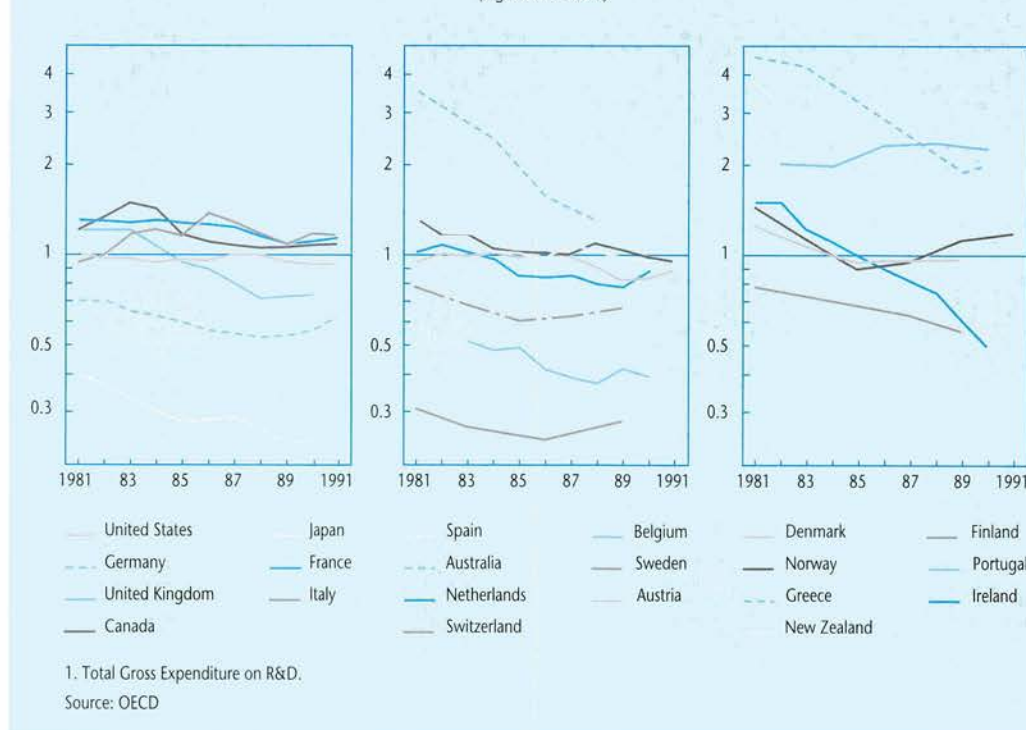
better reconciling the liquidity requirements of savers with the demands of the productive sector for 'patient' capital); and a decline in government influence over the allocation of capital. With three consequences: an extension of the range of possibilities both for investing and obtaining savings; a reduction of the costs of financial intermediation through keener competition and the lowering of non-liquidity premia because of the increased negotiability of many instruments; and a rationalisation of the criteria by which requests for funding are assessed.

What then are the implications for the financing of innovation? A few assumptions can be put forward before discussing the implications for public policy. The liberalisation of financial markets has undeniably had beneficial effects. By and large, it has increased the efficiency and flexibility of the financial system and reduced the international differentials in the cost of capital for firms with access to globalising sources of

finance.³ Not surprisingly, therefore, the debate on the financial aspects of competitiveness is now tending to focus on the comparative efficiency of different forms of corporate governance. In improving the global system of risk management, liberalisation has facilitated the private financing of projects with high earnings potential where the scale and degree of risk hitherto acted as deterrents.

Yet in delivering these benefits liberalisation has altered the behaviour of investors and the portfolio of risks borne by the financial system. In other words, it has altered the composition of the total amount of investment financed according to market logic, in a way which has not necessarily favoured all innovation-related investment. It has, arguably, discriminated against certain types of risk, firm and investment. By accommodating the liquidity preference of investors, financial innovation has accentuated the shift of private capital away from projects that do not lend themselves to collective evaluation on the standardised

Figure
Trends in R&D Financing
ratio of government-financed to business-financed GERD¹
(logarithmic scale)



criteria of large, interconnecting international markets.

The first victims are risky projects proposed by small businesses unable to guarantee liquidity by listing their shares or 'securitising' their debt. This problem is compounded in countries where venture capital is a scarce commodity. Another category of investment that has tended to suffer is infrastructural investment (in the conventional sense of the term, or on a broader definition that includes spending on pure research or expenditure on innovation which is almost a kind of social experimentation) promising only small micro-economic returns, but offering considerable longer-term economic and social benefits.

There are also grounds for questioning the implications of rationalising and standardising the criteria for allocating savings (including corporate savings), on the orientation of innovation efforts. Innovation in product is liable to be penalised in relation to innovation in process since it carries a higher degree of uncertainty, the rationality of the producer generally being easier to decipher than that of the consumer.

In sum, the transformation of financial markets is itself supplying only a partial – in both senses of the word – answer to the problems of innovation financing caused by the changing character of the investment projects involved because of: the restructuring of the links between pure and applied research; the growing uncertainty about the appropriation of benefits from innovation; and the higher cost of R&D and shorter lifespan of products. The answer is partial in one sense because certain types of investment are still difficult to finance through the market. It is partial in the other because the 'financial revolution' has widened the gulf, as far as access to funding is concerned, between activities that are highly internationalised through the agency of large corporations and those that

2. See pp. 30–33.

Table
Structure of Net Financing of Non-financial Enterprises, 1980–90
%

| Sources of funds | United States | Japan ¹ | Germany | France ² | United Kingdom ³ | Italy ⁴ | Canada | Spain ⁵ | Finland ⁶ | Norway ⁷ | Netherlands ⁸ | Sweden ⁹ |
|-----------------------|---------------|--------------------|-------------------|---------------------|-----------------------------|--------------------|--------|--------------------|----------------------|---------------------|--------------------------|---------------------|
| Retentions | 70.6 | 39.9 | 73.6 ^a | 37.0 | 48.6 | 48.9 | 54.5 | 54.0 | 45.3 | 54.9 | 68.9 | 43.0 |
| Shares | -4.9 | 7.7 | .. | 12.3 | 12.9 | 10.4 | 11.3 | 14.9 | 6.4 | 3.3 | 10.2 | 6.6 |
| Short-term securities | 2.0 | .. | 26.4 ^b | .. | 23.8 ^c | .. | 5.4 | 1.5 | 0.9 | 17.8 ^c | 14.7 ^c | 0.0 |
| Short-term loans | 2.7 | 15.1 | .. | 16.3 | .. | 5.0 | 6.4 | 3.4 | 7.7 | .. | .. | 18.7 |
| Trade credits | 6.9 | 10.1 | .. | 16.2 | .. | 18.1 | 3.5 | 11.9 | 7.8 | .. | .. | 7.1 |
| Long-term bonds | 14.2 | 5.6 | .. | 0.9 | 8.1 | 2.1 | 4.9 | 2.8 | 4.1 | 6.7 | 0.6 | -2.5 |
| Long-term loans | 9.0 | 21.6 | .. | 8.2 | 4.6 | 6.9 | 14.0 | 7.8 | 21.9 | 11.7 | 3.6 | 16.2 |
| Other ¹⁰ | 0.5 | 0.0 | .. | 9.6 | 2.0 | 8.7 | 0.0 | 3.7 | 5.9 | 5.6 | 2.0 | 10.9 |

.. not available

1. 1982–89.

2. 1980–89; industrial enterprises.

3. 1983–90; large enterprises.

4. 1982–90.

5. 1983–90.

6. 1980–88.

7. 1980–89.

8. 1981–89; manufacturing enterprises.

9. 1981–89.

10. Increase in other accounts payable, net capital transfers received, statistical discrepancy, etc.

a. Includes shares.

b. Includes short-term loans, trade credits, long-term bonds and loans, and others.

c. Includes short-term loans and trade credits.

Source: OECD

have a more limited range and involve smaller enterprises.

The Persistence of National Differences

The liberalisation of financial markets has not eliminated all their shortcomings in the financing of innovation any more than their globalisation has eliminated (though it has lessened) the diversity of national financing systems. There continue to be important differences between countries in: the ratio of public to private financing (Figure, left); the intensity and forms of public financial stimulus to private innovation investment; the structure of corporate financing (Table); the nature of the links between corporate financing structures and corporate ownership and management patterns; the

degree of development and sophistication of market mechanisms specialising in the management of innovation-related risks (the venture-capital market, for example).

Where private financing is concerned, classical policy analysis distinguishes two major groups of systems. The OECD has examined their characteristics and assessed their strengths and weaknesses in supporting innovation. The first group comprises the 'market-based' systems (the United States, but also the United Kingdom and Australia) in which the markets for financial securities play a preponderant role in supplying industry with external capital and which are notable for the separation between corporate ownership and control. The second consists of the 'credit-based' systems (Japan and the countries of continental Europe), which give a much bigger role to banks, both as financing channels and as partners in corporate management.

Financing Innovation

Although these national systems of private financing are to some extent now beginning to converge, some of the differences between them continue. This is particularly the case with the methods of financing and monitoring the types of investment and enterprise which are not easily assessed by internationalised markets for 'securitised' financial instruments. Investing in innovation in existing small businesses and through enterprise creation is thus becoming more crucial in determining relative national economic performance, now that globalisation is evening out the other determinants and entrepreneurship is becoming a more important vehicle for translating scientific knowledge into incomes and jobs.

Adapting Public Policy

All these developments are making it necessary to refocus government intervention, since they are reducing the efficiency of the traditional approach wherein the innovation process is propelled upstream with state financing of basic research and accompanied downstream by subsidies or tax reliefs for private investment. Even if the importance of reform varies across countries (the United States, for example, is conspicuous for the sophistication of its venture-capital market), some common lines of approach can be identified.

First, a closer match between the dynamics of innovation and those of the market in a context of fiscal restraint will require channelling more private savings (institutional, like the 'patient' capital of pension funds, or individual, like the 'attentive' capital provided by more active investors, wealthy individuals, known as 'business angels', interested in directly funding promising enterprises) into all stages of the innovation process. Second, government support has to be redirected to the firms that most require it, and thus check the drift of some forms of assistance to the big corporations when developments in the financial markets already tend to favour them. Third, this redeployment should be accompanied by a re-assessment of

means of action in order to improve the definition of policy problems and objectives, as well as the mix of policy instruments.

The effectiveness of government policy has often suffered from the attempt to find a single, simple answer to complex problems. Some have to do with the nature of innovation investment: the large share of intangible investment makes it difficult to provide collateral, which increases the call for equity capital in the phase of the innovation project when the possibilities of self-financing are limited. Others stem from excessive uncertainties (technological/managerial/commercial) surrounding innovation projects; here the suitable solutions are those that increase the relevant information available to investors (one example is the Investment Rating project launched by a Netherlands bank; another is the French scheme of *réseaux de compétence*). Finally, there are the problems caused by the weakness of specific elements of the financial system in risk-management (the venture-capital market, for example); and here it is a question of strengthening these market mechanisms.

Similarly, one should distinguish between different types of objective. If the aim is to attract private capital to innovation while satisfying the liquidity requirements of investors, some thought might be given to the possibility of 'securitising' certain investments (as is envisaged in France in the case of credit guaranteed by SOFARIS). To improve the underwriting of particular risks (say, for the seed or start-up capital of technology-based firms), a state guarantee is not the only conceivable answer. It might also be possible to mobilise investors with an appropriate system of preferences, such as business angels (there are examples in the action of the Danish Innovation Centre or the tax breaks offered by the Enterprise Investment Scheme in the United Kingdom). And if the aim is to bridge the debt-equity gap which constrains the development of firms with no access to ordinary equity markets, specialised financial markets must be energised.

Finally, the new policy approaches that are taking shape in some countries are testifying to the importance of well co-ordinated complementary action. To take only venture capital, some

lessons have to be drawn from the disappointing record in Europe in recent years, which can be summed up in two words: drift (the investment of venture capital has not generally focused on the stages – seed and start-up – where it was most required), and decline (the total capital invested has decreased in volume). The government of the Netherlands, for example, has recognised a disappointing result for its support programme to venture-capital through guarantees. It was found that measures to bring investors into this market could not be effective without parallel measures to ensure satisfactory conditions of exit – hence the interest aroused in numerous circles by the idea of creating a European market along the lines of the NASDAQ (National Association of Securities Dealers Automated Quotations) in the United States.

■ ■

The emergence of a new model of growth gives an increasing role in translating science and technology into income and jobs, to firms which constitute a 'new alliance' between entrepreneurship, sources of capital and sources of knowledge. This development requires the adaptation of policies to support the financing of innovation, to give more weight to two objectives: the development of market mechanisms to mobilise external private capital for innovation; and the promotion of the forms of corporate governance which favour the complementarity of internal and external sources of capital in financing innovation strategies. ■

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Education: Face-to-face or Distance?

Pierre Duguet

The economic and social changes under way in all OECD countries are generating an ever-increasing demand for higher and continuing education. In response, countries have been expanding their higher-education sector. But developing only the face-to-face teaching provided by conventional institutions is too costly and does not cater for the diversity and specificity of demand. 'Distance learning' provided by open institutions using state-of-the-art education technologies, in conjunction with face-to-face teaching, seems to be the only alternative for the years ahead.¹

More importance than ever is being attached to education and training, both by individuals and by society as a whole. Extended or continuing learning has come to be seen as important to the lives and employment prospects of all citizens, not only to an elite few. This realisation is causing an increase in demand, which can be divided into three categories.²

First, there is growing demand for higher education on the part of secondary school-leavers. In some cases it is being further stimu-

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lated by political objectives, as in France where the government has caused social demand for higher education to grow by announcing a target for qualification for university entrance of 80% of the relevant age-group. Germany, too, is planning to increase access to university. In addition, the fear of not finding employment is inducing students to extend their initial schooling for as long as possible.

Second, the demand for adult education and training continues to grow steadily because of the importance of adaptation to the structural changes occurring in OECD countries. The rapid reduction in the number of unskilled jobs in manufacturing industries from the 1980s onwards has been the most obvious factor in this trend. But more generally, it has come to be realised

that structural changes imply new roles for workers, which require thinking skills and a use of literacy in new and unfamiliar situations; in short, the worker has to acquire new skills. *The OECD Jobs Study* has demonstrated the importance of in-service training.³

Finally, independent of the initial or continuing vocational training required by the labour market, there is in many countries growing demand from adults, particularly jobless and retired people and part-time workers, who seek a form of training that will develop their intellectual, technical, cultural or even physical abilities. This demand for personal fulfilment may even be central to life-long education, as it is in Japan.

Demand Calls Forth Supply

Whether in initial higher education or in continuing education, each individual wishes to find the training best suited to his or her aims and means, and everybody wants a flexible open education system. Full-time enrolment in a programme based at an academic institution suits some learners but not all. The time available to people in full- or part-time jobs or with family responsibilities is limited and generally does not fit in with conventional university hours. For people whose home or workplace is a long way from institutions that interest them, or who are physically handicapped,⁴ there is the problem of location of teaching, which increases as the diversity of people's learning requirements makes teaching supply more specialised. Finally, bad memories of compulsory schooling may further

1. *Learning Beyond Schooling: New Forms of Supply and New Demands*, OECD Publications, Paris, forthcoming 1995. This publication served as the background report for a conference held at OECD headquarters on 14-16 December 1994, with over a hundred participants from 24 countries.

2. Norberto Bottani, 'Comparing Educational Output', *The OECD Observer*, No. 193, April/May 1995.

3. *The OECD Jobs Study: Facts, Analysis, Strategies*, OECD Publications, Paris, 1994; *The OECD Jobs Study: Evidence and Explanations*, OECD Publications, Paris, 1994.

4. Peter Evans, 'Integrating Handicapped Children', *The OECD Observer*, No. 187, April/May 1994.

Education: Face-to-face or Distance?



The quality of teaching depends in large measure on interaction with a good teacher – on which grounds a lecture can leave a lot to be desired.

alienate some potential students from traditional learning institutions, which they regard as unsuited to modern pedagogy.

The diversity of demand from these new client groups therefore has to be matched by a diversity of supply, which is unlikely to be provided by any one type of institution, or even necessarily by a single nationally supervised 'system' of education and training. The supply of educational services is starting to look less like a traditional public service and more like an industry, potentially with international as well as domestic 'outlets' (through, for example, the market for CD-ROM, educational software, and so on).

Moreover, the nature of supply is changing so as to remove traditional barriers to learning. In particular, the institutional framework is changing. Variety is growing, both within and between higher-education institutions, in terms of means of delivery modes and target groups of 'clients'. Many institutions are becoming more

open to part-time students, offer a wider range of courses of varied duration, and make efforts to combine on-campus with off-campus instruction through partnerships with work- and community-based organisations. In the United Kingdom, the majority of enrolments in higher education is now accounted for by 'mature' students who have had some break from continuous full-time education after school. In Sweden it is estimated that nearly half of all adults engage in some form of organised learning in any given year.

A new financial framework is also evolving. The expansion of higher education from the 1950s onwards was underpinned by a public-

5. Danielle Colardyn and Marianne Durand-Drouhin, 'Recognising Skills and Qualifications', *The OECD Observer*, No. 193, April/May 1995.

6. David Hopkins and David Stern, 'Three Sources of Good Teaching', *The OECD Observer*, No. 191, December 1994/January 1995.

7. Vers un enseignement supérieur sur mesure, *Ministère de l'Enseignement Supérieur et de la Recherche*, Paris, 1994.

sector commitment to pay for it. By contrast, present and future development of higher education is being considered in the context of shared responsibilities for funding. Employers and individuals who benefit from an investment in learning are expected increasingly to contribute.

'Self-directed' Learning

But freeing students from the constraints of time and place, doing away with journeys to lecture rooms, enabling each to work at his own pace, can be achieved only in a system where distance-learning is possible. The development of communication technologies has swept away the old concept

of distance in terms of geographical remove. A distance-learner is anyone who is not actually in the presence of his teacher while learning, whether in a study room, in the next building, at home or in a place located hundreds, even thousands, of miles away. Distance- or 'self-directed' learning of this kind is not new. What is new, on the other hand, and significant for the future is its place in relation to traditional education and its quality thanks to the use of technology.

There are a number of reasons for this development. First, it is necessary to reduce the principal costs of traditional education – the wage bill and the construction and maintenance of buildings. Many governments are hoping that, with these savings, the unit-cost of self-directed education will be lower than that of face-to-face education of a comparable type. All the studies show that distance education costs, on average, only half as much as education provided in a traditional institution. Yet it should be em-

phased that the initial cost of producing teaching materials is relatively high.

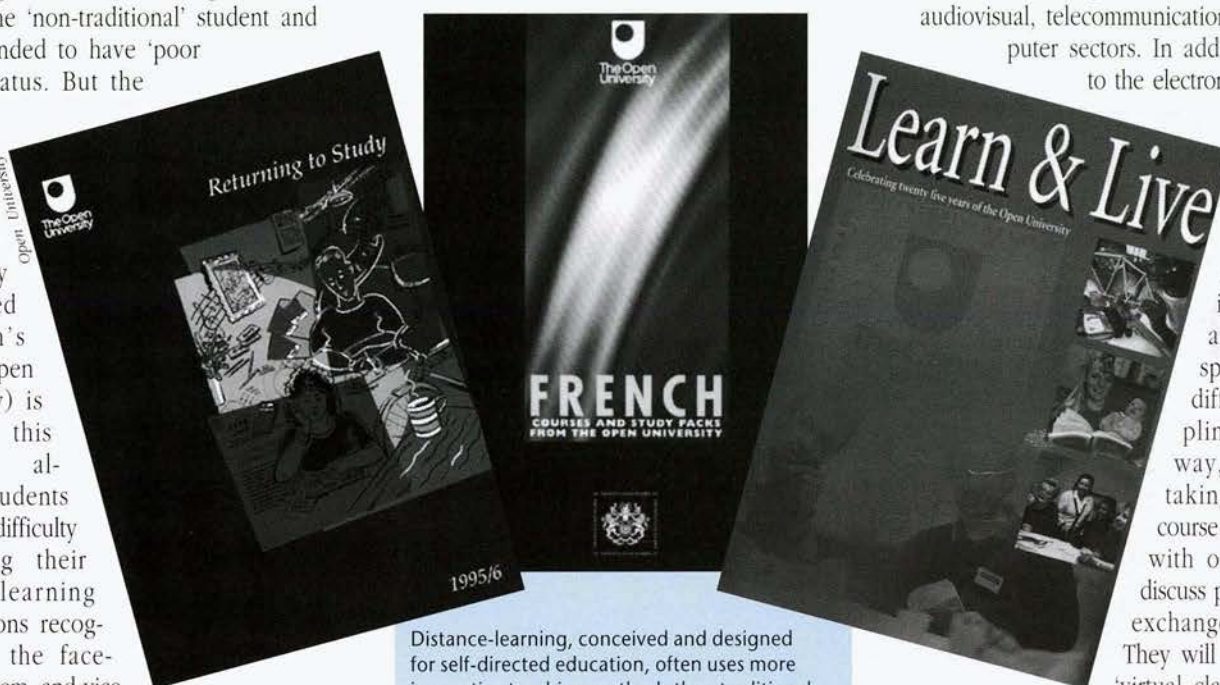
The second reason is institutional. For a long time distance-education was considered to be on the fringe of the traditional higher-education system. The 'non-traditional' student and teacher tended to have 'poor cousin' status. But the recent success of open distance systems (especially the United Kingdom's famous Open University) is changing this situation, although students still have difficulty in getting their distance-learning qualifications recognised by the face-to-face system, and vice versa. Yet developments indicate that it will not be long before cross-crediting is reliably established.⁵

Quality through Technology?

The third reason is pedagogical. In response to the diversity of learners and their problems of time and location, the distance-teaching institutions have sought to innovate and in some cases have done so to a wider extent and better than the traditional system. Distance courses have been designed, developed and established essentially for the purpose of self-directed learning – which means that considerable thought will have to be given to the acquisition of knowledge, with a view to improving the quality of courses.

But quality is also often conditional on interaction with a good teacher.⁶ In the traditional

face-to-face teaching system, it is becoming increasingly difficult to ensure high-quality interaction. For example, lectures – which in some countries are often given before a very large



Distance-learning, conceived and designed for self-directed education, often uses more innovative teaching methods than traditional education.

audience – are a teaching tool ill-suited to interaction.

The final reason, and it is an important one, is technological progress, which now permits a high degree of pedagogical interaction between the student and the various sources of knowledge. Even a video-cassette recording of a very good lecture offers the learner, who can rewind and replay it the better to understand a difficult point, more interaction than if he had attended the lecture himself. But when one adds to this facility – which, admittedly, is not very interactive – powerful computer-based learning software using multimedia (text, sound, images and graphics), studying on one's own could become very cost-effective indeed.

Advances in technology (digital compression, fibre optics) are now making it possible to treat visuals and sound as computerised data to be

carried on high-capacity interactive networks. The Internet has pioneered the establishment of information superhighways that will permit increasing integration – necessary in particular for distance-learning and self-study – of the audiovisual, telecommunications and computer sectors. In addition, thanks

to the electronic networks,

each user/learner will be able to access various sources of information and forums specialising in different disciplines. In this way, students taking the same course can converse with one another, discuss problems and exchange solutions. They will thus form a 'virtual class' although

being in different locations and participating in the course at different times. This development will introduce a radically new dimension in the world of education.

Made-to-measure Higher Education

In short, the whole present system of higher education is being challenged by the new demands for instruction adapted to student requirements and by technological progress. It is therefore necessary to establish a 'system of made-to-measure' higher education, as is being proposed in France, for example.⁷ Such a system would abandon the present distinction between face-to-face students and distant students, the latter being those who cannot physically attend university. It would instead permit each student, regardless of his or her situation and in the context of his or her own learning



The principal costs of traditional methods of education – salaries, buildings and maintenance – disappear with self-directed learning.

project, to devise a course of study combining on-campus classes with off-campus instruction using multimedia technologies. Meeting the requirements of the student means putting him or her at the centre of the system, which in itself represents a substantial change.

This trend is already under way in a number of countries, the first stage being to combine in one institution the two modes of education, face-to-face and distance. Dual-mode institutions now make up 42 of the 69 universities in Canada, 23 of the 80 in France, three of the seven in New Zealand, more than half of the universities in the United Kingdom, nearly all in the United States and all in Sweden. The second step is to create an exchange

between the two modes, which is much more difficult.

Higher education institutions of the face-to-face type will have to change their intrinsic culture. To some extent this transformation will be made easier by the presence of students who have grown up with the computer and multimedia learning materials and have an open-mindedness which most of their teachers do not yet have. Furthermore, face-to-face education will have to withstand competition from other sectors. For example, firms in the private sector are setting up technology-assisted training programmes; they are being delivered in the workplace and are often of very high quality. This competition will

bring pressure to bear for the improvement of the traditional system.



Higher education is therefore confronted with three challenges: to provide good-quality instruction adapted to the 21st century, to supply it to every young student and adult who requires it, and to deliver it as cost-effectively as possible. The solution proposed – extensive use of technologies – may shock supporters of the status quo, but there are no alternatives. Developing those learning activities that have maximum value in a face-to-face setting and leaving the others to self-study assisted by the new education technologies would certainly be the reasonable course to take. ■

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Farm Household Incomes

Catherine Moreddu

How high are the incomes of farm households? This question is linked with one of the objectives of agricultural policy common to most OECD countries: to ensure that farm households enjoy the same standard of living as those in other sectors of the economy. Another aim may be to limit variation of income within the agricultural sector itself.¹

One of the prominent goals in official statements of agricultural policy almost everywhere is to ensure the same living standards in agriculture as in other industries.² But the relevant income to be taken into account or the group to be covered is seldom well defined, which makes such an objective hard to assess (box, p. 22) and therefore hard to achieve. The problems raised by cross-country comparisons of farm incomes are compounded by the wide variety of definitions employed and the fact that data differ in availability, reliability and detail. Nevertheless, a review undertaken by OECD does reveal some common elements.

Variations in the composition of farm-household incomes from country to country occur partly because the definitions of such terms as 'farm households' themselves vary. There are two extremes, with the United States and Japan at one end of the scale and Switzerland at the other. The United States and Japan use a broad definition and stand out because income from farming accounts for such a relatively small share of the income of 'farm households'. Switzerland is an exception in that by definition most of the

total farm income is from farming since Swiss statistics cover only full-time farmers and the incomes of people working on the farm. Yet non-farm income was clearly important to farm households in every country studied. In most cases earned income, principally wages and salaries, is the main source of non-farm income, followed by social transfers such as pensions and family allowances or, in some countries, income from land, real estate and securities. But whatever the definition, farm income does not generally exceed three-quarters of the total income and is sometimes less than half, even in countries with a narrow definition of such households, like Spain, Italy and the United Kingdom, where income statistics take account only of those farms where agriculture is the main occupation (Figure 1).

Comparable Income

For twelve OECD countries,³ the disposable income of farm households was compared with that of other sectors of the economy. Figure 2 shows the ratio of disposable income in farm households to that of all households, non-agricultural households, all wage-earning households or industrial workers' households,

depending on data available for each country. In most countries, farm households reach incomes that are close to, or higher than, those of other households,⁴ the only exceptions being Portugal and Sweden. Further, since income-in-kind is so hard to measure with accuracy and farm households could declare part of their farm income as investment, agricultural incomes are probably underestimated.

In terms of disposable income per household member or per earner, on the other hand, over half the farm households in the review were found to be worse off than other households. This difference can be attributed to structural characteristics, since farm households tend to have many more children than other households and several generations may live under the same roof. When it is possible, as in Germany, Finland and France, to compare the incomes of farm households with those of other occupations, farm households are worse-off than other self-employed households but better-off than wage-earning households.

These findings are based only on averages and do not reflect the wide range of situations found in agriculture. To obtain a clearer picture, incomes should be examined against the structural or demographic characteristics of households or farms.

Variation within Agriculture

Substantial variations in income are still found in agriculture even though they are partly offset by non-farm incomes in all the countries under review. The ability of a farm household to earn non-farm income depends on structural characteristics, such as the availability of labour for other

1. *Adjustment in OECD Agriculture: Issues and Policy Responses*, OECD Publications, Paris, forthcoming 1995.

2. Australia, New Zealand and more recently Sweden are the only countries not to make the amount of farm income an explicit policy objective.

3. Belgium, Denmark, Finland, France, Germany (ex-FRG only), Ireland, Italy, Japan, Netherlands, Norway, Portugal, Sweden.

4. This is also the case in Canada and the United States, where the total income of farm households is comparable to that of all households.

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Farm Household Incomes



Non-farm revenue is particularly important in Japan.

types of employment, the proximity of the farm to off-farm jobs, or the tourist potential of an area.

The structural characteristics in question are those most commonly cited in official statistics: the age of the farmer, the size of the farm, the type of farm enterprise, and regional characteristics. Variations have been measured in terms of the differential between the highest and lowest incomes (relative to the sample average).

The data available for five countries – Denmark, Germany (ex-FRG only), Norway, Sweden and the United States – show a common trend in total farm household income according to the age of the farmer. Income rises with age, peaking between the ages of 40 and 50 in Germany, Norway and Sweden, a little earlier in Denmark (35/45 years) and a little later in the United States (45/55 years). Thereafter it declines. Although the incomes differential observed among the different age classes is bigger in the United States and Denmark than in Germany or Sweden, it is nevertheless quite small since the largest deviation from the average is

between 0.2 and 0.7, except in Norway where pensions are not included in total income.

Whichever classification is used by the 11 countries⁵ reporting data, both farm and total income tend to increase in accordance with farm size. But the fact that the smallest holdings do not always have the lowest total incomes reflects the importance of non-farm activity. In most countries, income variability is significantly reduced when total rather than simply farm income is considered. In Japan, for instance, non-farm income is so important that any difference related to farm size disappears when total income is taken into account. The biggest difference in income relative to the average is less than 1 in most cases but close to 2 in Denmark, the United States and Finland and also in Germany where size classes are defined by area.

Farm income can also vary, of course, with the type of farm enterprise. Here the differences can sometimes be substantial. In many countries, the highest farm incomes are found among intensive livestock producers, and the lowest among extensive livestock producers. Income

BACKGROUND

Problems of Methodology

What is a Farm Household?

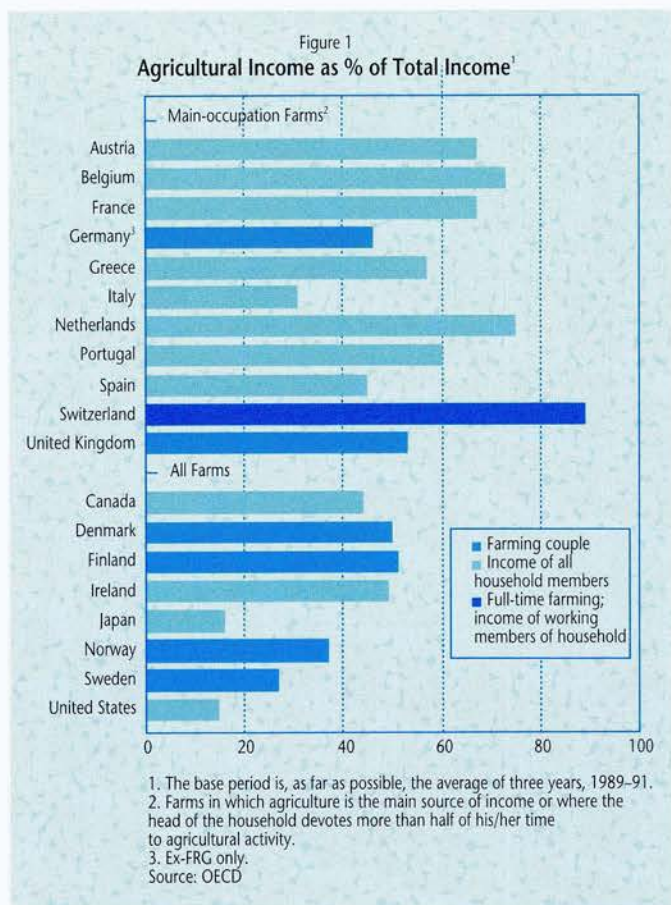
Practice in defining what constitutes a 'household' and an 'agricultural' or 'farm' household varies from country to country. A household, in the strictest sense, can be no more than one couple and their dependent children. A broader definition may include other adults, or all those who live under the same roof and share meals. In some countries, a household is deemed to be agricultural if part (often half) of the income derived by all of its members or the reference person comes from farming, or if a minimum share of labour input (again usually half) goes into farming. Furthermore, narrow to broad criteria are often applied to the physical or economic size of the farm.

Total Income and Disposable Income

Household income can be viewed as the measurement of a household's potential consumption. In the OECD review, it is measured in terms of total income or disposable income. In general, total income comprises any flow that can be measured in money terms and is derived from farming, other gainful activities, financial assets or social transfers. Depreciation is also included in most countries. The same is not always true for income-in-kind, which is hard to account for but which, for farmers, may be substantial. Disposable income, or total income after taxes and transfer payments, is a clearer reflection of a household's potential consumption since taxation systems and social contribution schemes in some countries treat socio-professional categories differently.

Data Sources and Availability

Data on the total income of farm households come from two sources. National accounts (production or income distribution) provide information on farm and other households. Surveys of farms, household budgets or taxation relate the income situation in farm households to structural, socio-economic or regional characteristics. In many cases, a number of sources are combined to establish income data. The availability, reliability and detail of information on farm household incomes vary considerably from one country to the next.



from non-farm activities also depends on the type of farm enterprise and, in particular, on its labour intensity. For instance, large crop farms (cereals, oilseeds) often have a total income which is relatively high. Although there may be considerable differences from one type of enterprise to another judged by farm income alone, the gap closes when total income is taken into account, with the ratio to the average exceeding 1 in only three out of 14 cases (Australia, Denmark and the United Kingdom).

Regional differences generally have less effect on incomes than size of farm or type of enterprise. Here, too, the differential between high and low incomes is smaller when total

5. Canada, Denmark, Finland, Germany (ex-FRG only), Ireland, Japan, the Netherlands, Norway, Sweden, Switzerland and the United States.

6. Wilfrid Legg, 'Direct Payments for Farmers?', *The OECD Observer*, No. 185, December 1993/January 1994.

household income is taken into account – only Australia, with its enormous geographical diversity, displays substantial income differentials from one region to the next.

Better-targeted Assistance

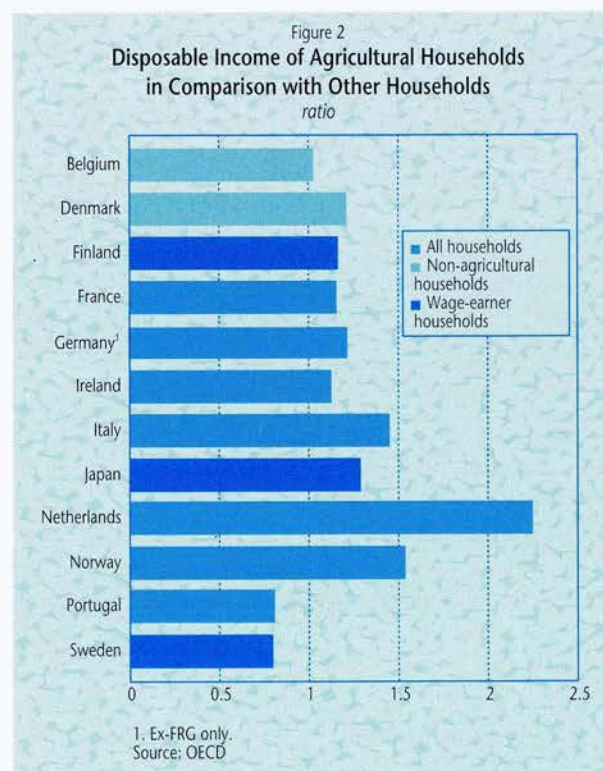
The main form of assistance to farmers in OECD countries is market price support, that is, measures affecting both producer and consumer prices, one example being guaranteed prices. In 1994, this measure accounted for 74% of all support for OECD agriculture. Direct payments – any transfers from taxpayers to consumers that do not affect producer prices – ac-

counted for only 18% of all support. Unlike price support, which is provided to all producers (in relation to their output), direct payments can be targeted to a particular category of farmers – on the basis, for instance, of income.

The review reveals that agriculture is not suffering from a widespread problem of income but from specific, localised deficiencies. The average incomes of farm households are generally comparable to those found in the rest of the economy, but structural data suggest considerable variability in total incomes for many OECD countries. If governments want to achieve their goals in farm income,

it would be more efficient to focus specifically on very low incomes than on measures directed at the entire farm sector, as is the case with output-related price support.⁶ In the countries covered by the review, income problems appear to be specific to certain geographical areas. Moreover, because of the importance of non-farm income, generalised forms of assistance tied to agricultural output focus only on one part of the picture. Another drawback is that, by masking market signals, they impede the ability of farm households to diversify their sources of income, change the structure of their operations or lead them to exit the farm sector altogether.

Policy interventions may be appropriate when there are some structural or demographic rigidities, as with, for instance, elderly farmers (box, p. 24). Structural data on farm household incomes may then be used to pin-point where assistance is required and to devise government measures to facilitate entry to or exit from the farm sector, improve farm structures and encour-



Farm Household Incomes

FOCUS

Early Retirement for Farmers

Michael Ryan

In many OECD countries early-retirement schemes for farmers have been used as instruments to promote, encourage and facilitate resource adjustment so as to increase the efficiency and viability of the agricultural sector.¹ Elderly farmers are seen as a problem as far as the efficiency of the sector is concerned since they are associated with small, fragmented holdings with below-average productivity. Many early-retirement schemes are designed also to improve what are often the low incomes of the older farming population and to deal with production surpluses. In general, these schemes require the people concerned to give up their farms and cease farming activity altogether.

Although they vary substantially from one OECD country to another, early-retirement schemes do have a number of common features: they are reserved for farmers aged from 55 to 65; and they are open to farmers who have operated a farm of a specified minimum size and who have practised agriculture for a minimum number of years (ten years in the European Community). Most of the schemes provide for several forms of disposal of land: long-term lease, gifts or outright sale. In all the countries covered by the OECD survey² early-retirement benefits are subject to the country's normal tax and social legislation.

The age-structure of the agricultural working population is of the inverse-pyramid type, broad at the top and narrow at the base, with an average age markedly higher than for the working population as a whole. In the EC, more than 50% of farmers are over 55 years of age and about one-quarter are between 55 and 65 (roughly one-third of farms are run by farmers in this age bracket). The agricultural labour-market is characterised by a sharp and continuing decline in employ-

ment, a high average retirement-age and a high proportion of owner-occupiers.

Early-retirement schemes have succeeded only partially in encouraging and facilitating resource adjustment in the OECD countries: where the financial incentives are large, as has been the case for some programmes in Sweden and Finland, the rate of participation is relatively high. But in most countries that is not the case. This low participation-rate can be explained by a number of factors: the relatively low value of retirement benefits, restrictive eligibility criteria for some schemes and cultural resistance within the farming world to the complete abandonment of agriculture. Lastly, there is the question of whether in many countries the number of early retirements is higher than it would be without these schemes.

Reviewing Objectives and Broadening Eligibility Criteria

Several lessons can be drawn from the overview of OECD country experience of early-retirement schemes for farmers. First, many of the schemes were designed with too many and, in some cases, conflicting objectives, and with eligibility criteria which are too restrictive to attract large numbers of participants. Second, although there is very little information on arrangements as to financial incentives, it would appear that those offered have in many cases been inadequate to tempt farmers. Benefits paid out have not kept up with other pension schemes: to obtain higher participation more generous treatment would be required.

For early-retirement schemes the primary aim of which is to promote factor mobility within agriculture, it would perhaps be sensible to broaden the objectives and ease criteria for eligibility. The age-limit might even be abandoned and other forms of employment authorised. In Canada and Australia the first has already been done and schemes are targeted directly at efficiency and resource mobility.

Improving Incentives

To what extent are incentive arrangements likely to influence decisions to remain in or

give up farming? To answer this question adequately, it might be useful to look more closely at the specialised literature on economic incentives in conditions of uncertainty and obtain more detailed empirical data on farmers' strategies. But it should be noted that government would have to weigh expenditure incurred through more attractive incentives against expected benefits in terms of resource mobility or the achievement of other objectives set for the agricultural sector.

It is less easy to assess to what extent early-retirement schemes for farmers enable income objectives to be achieved, given that farming households have many and increasing sources of non-agricultural income. In many countries it is important that the provisions of early-retirement schemes for farmers tie in or are compatible with social-security schemes so as to avoid elderly farmers being caught up in 'poverty traps'.

Eliminating Other Impediments

The structural difficulties of agriculture may have several causes other than the problem of elderly farmers, not least restrictions on the disposal or sale of holdings. In situations of this type, early-retirement schemes are not sufficient to promote structural adjustment. To improve the structure of farms by creating more viable units, a broader strategy is also required that aims at eliminating impediments to adjustment and including targeted measures to encourage factor mobility. In most of the OECD countries the situation is complicated by the very high volumes of support given to agriculture as a whole, delivered mainly through output-related policy measures. Since that is the case, there is some doubt about whether eliminating a number of low-productivity farms operated by elderly farmers would improve the efficiency of the sector or of the economy as a whole.

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1. *Adjustment in OECD Agriculture: Issues and Policy Responses*, OECD Publications, Paris, forthcoming 1995.

2. EC(12), Finland, Japan and Sweden.

age the potential diversification of income sources. Direct income payments could meet government objectives in a more efficient and less economically distorting manner than output-related support.

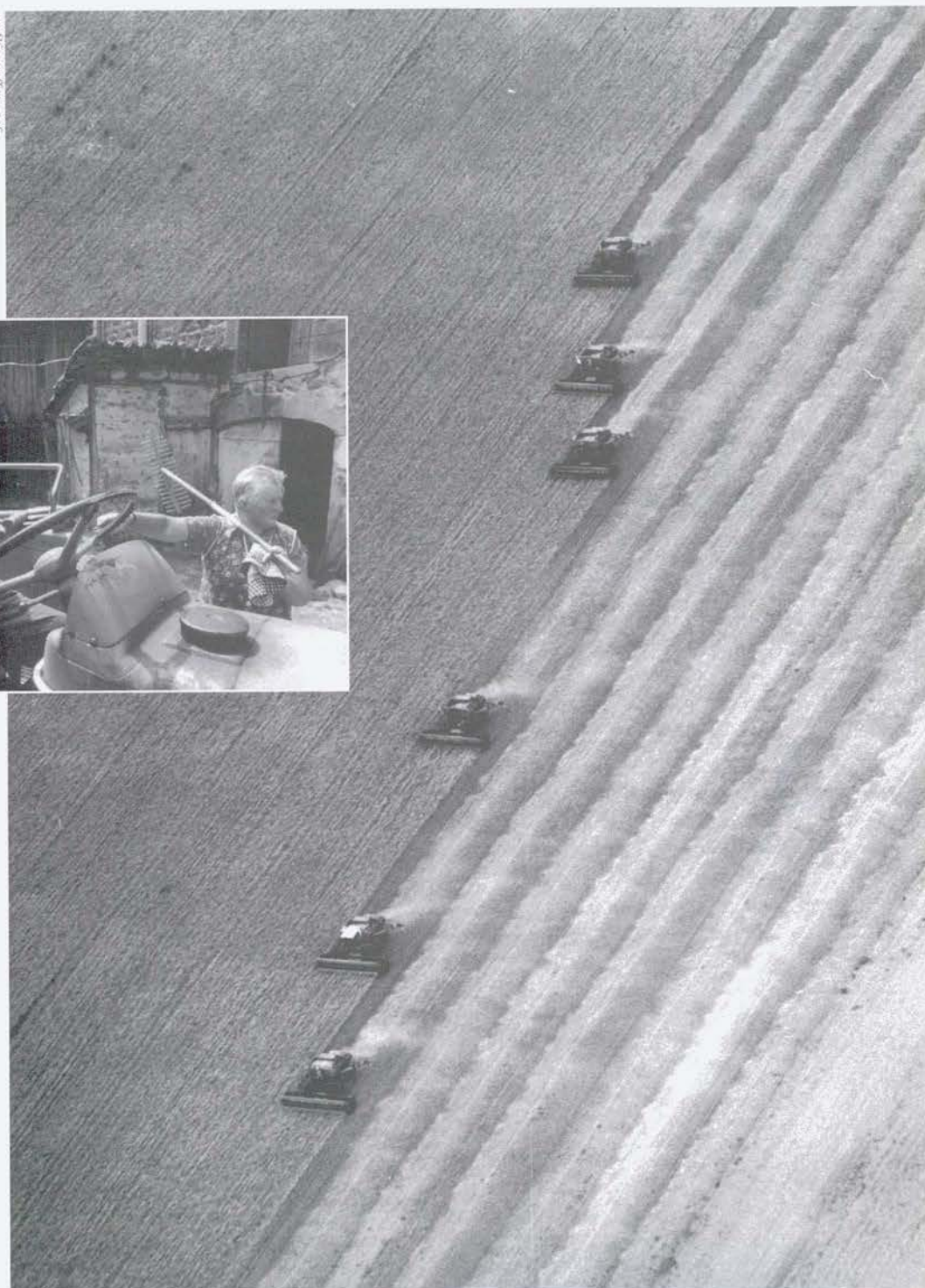


Measures to ensure that farm households enjoy the same standard of living as other sectors of the economy do not have to be confined to agricultural policy alone. Indeed, it could be preferable to include them under general social provisions. In that case, it would be essential to improve the data to allow income comparisons to be made between farm and other households and to pinpoint those households receiving incomes below a certain threshold. Finally, the broad policy objective of ensuring that farmers receive incomes similar to those in other sectors of the economy should be re-articulated, specifying which farmers are to be the focus of attention, what is to be included in income, and exactly what the income objective is to be. More flexible information systems would make it possible to collect data better suited to assessing the objective and to designing measures to achieve that goal. ■



Leinadofor/REA

J.-P. Luffont/Syngma



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The biggest disparities in income in the agricultural sector depend on the age of the farmer at the head of the household, on the size of the farm, the type of farm enterprise and where it is located.

Competition Comes to Mexican Telecoms

Luis Rey

The experience of Mexico offers valuable lessons for countries with less advanced telecommunication networks now considering whether to continue with or abandon monopolies. The advent of competition may shortly expand services well beyond what even recently seemed an ambitious target.¹

As little as a decade ago it was widely believed that telecommunication was a natural monopoly, and that the only way to promote universal access at affordable prices was with a single operator. Many OECD countries were proponents of state-owned telecommunication monopolies, and that model was generally imported without question into the developing world. Today, with most OECD countries having liberalised, or in the process of liberalising, their telecommunication markets, an increasing number of developing countries are recognising the benefits of harnessing competition as a tool for economic progress.

Mexico has the least developed telecommunication infrastructure among OECD countries. In 1993, with only 8.8 lines per 100 inhabitants,

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its telephone penetration rate was roughly one-fifth the OECD average (Table). Furthermore, the diffusion of telecommunication services throughout the country is extremely uneven, with (as one might expect) the available infrastructure concentrated in large urban areas, whereas many rural communities are without any service.

In view of the increasing importance of the transfer of information in economic and social development, the rapid building-up of the telecommunication infrastructure poses a considerable challenge for Mexico. This is one reason that the country has acted to reform its telecommunication market: separating operations from regulation, privatising the telecommunication operator – Teléfonos de México (Telmex) – and liberalising its market. Mexico now has the opportunity to be a pace-setter in using competition to bridge the gap with other OECD countries – a development made even more desirable by the financial instability which erupted early in 1995.

Telmex is currently the only licensed supplier of fixed-link public telecommunication services in Mexico and it owns the public exchanges, the nationwide network of local telephone lines and the principal public long-distance telephone transmission facilities. The Ministry of Communications and Transport (SCT) is the current regulatory entity on telecommunications issues.

Throughout the 1980s Mexico was faced with an economic crisis. Problems such as the national debt, the fall in oil prices, high government deficits, devaluation of the peso, high in-

Table
Growth in OECD Mainlines,¹ 1992-93

| | Mainlines per 100 Inhabitants | |
|----------------|-------------------------------|------|
| | 1992 | 1993 |
| Australia | 47.1 | 48.7 |
| Austria | 43.9 | 45.1 |
| Belgium | 42.5 | 43.7 |
| Canada | 57.1 | 59.2 |
| Denmark | 58.1 | 58.9 |
| Finland | 54.4 | 54.4 |
| France | 52.5 | 53.6 |
| Germany | 43.9 | 45.7 |
| Greece | 43.6 | 45.7 |
| Iceland | 53.9 | 54.4 |
| Ireland | 31.4 | 32.8 |
| Italy | 41.0 | 41.8 |
| Japan | 46.4 | 46.8 |
| Luxembourg | 52.8 | 54.1 |
| Mexico | 8.0 | 8.8 |
| Netherlands | 48.7 | 49.9 |
| New Zealand | 44.4 | 46.0 |
| Norway | 52.9 | 54.2 |
| Portugal | 30.6 | 31.1 |
| Spain | 35.3 | 36.4 |
| Sweden | 68.2 | 68.0 |
| Switzerland | 60.3 | 61.1 |
| Turkey | 16.1 | 18.4 |
| United Kingdom | 45.2 | 49.4 |
| United States | 56.5 | 57.4 |
| OECD | 43.4 | 44.8 |

1. Connects the subscriber's terminal equipment to the public switched network and has a dedicated port in the telephone exchange equipment.

Source: OECD, ITU

flation and low investment were ever-present. The priority of the government during this period was to reduce public expenditure – which showed in Telmex's investment budget. Strapped for fiscal resources, the government increased taxes on telephone services. Simultaneously, it reduced the volume of its yearly investments in telecommunication, further stretching the company's capacity for financing growth. The nadir in Telmex's recent history was probably reached when the 1985 earthquake in Mexico City destroyed the nucleus of the long-distance network and left the country's capital without communications with the outside world for two weeks.

In the late 1980s, as part of its general programme of economic reform, Mexico began to restructure the telecommunication market.

In 1989, the government announced its intention of returning Telmex to private ownership, and in 1990 the company was bought by Grupo Carso, and two foreign partners, Southwestern Bell and France Telecom.² As part of this process of reform, a new regulatory environment was introduced, which permitted infrastructure competition in local telecommunication services and mobile communication.

It was decided by the government that long-distance telecommunication, one of the most profitable industry segments, would remain reserved for Telmex up to 1997, to allow the company to bring prices more into line with the cost of providing service. Telmex said the price



Telmex, which was privatised in 1990, has been allowed to hold on to its monopoly on long-distance services until 1997 – under certain conditions, one of which was that it had to provide a telephone service to all villages of more than 500 inhabitants within four years.

of long-distance telecommunication service was too high and the price of local service (local calls and line rentals) was too low. The tariff rebalancing began in 1987 and since then the composition of total revenues has changed dramatically (Figure 1). The aim was to strengthen the tariff structure with changes that would allow the self-financing expansion of Telmex and to prepare the enterprise for competition in long-distance services.

The trade-off for the continuation of a monopoly over long-distance services was a requirement that Telmex expand its number of subscribers by at least 12% per annum, something the company has achieved to date (Figure 2), as

well as to provide telephone service to all towns of more than 500 inhabitants by 1994, a goal it was on target to complete, and to meet quality standards. Telmex's monopoly has allowed it to generate one of the highest profit margins of all telecommunication operators worldwide. Its operating income shrank at an annual rate in real terms of 2.8% between 1980 and 1987, but

1. *Communications Outlook*, OECD Publications, Paris, 1995; Yuji Kato and Sam Paltridge, 'Telecom Tariffs and the Move to Markets', *The OECD Observer*, No. 191, December 1994/January 1995.

2. Carlos Casasis, 'Privatization of Telecommunications: The Case of Mexico', in Bjorn Wellenius and Peter A. Stern (eds.), *Implementing Reforms in the Telecommunications Sector: Lessons from Experience*, The World Bank, Washington DC, 1994.

Competition Comes to Mexican Telecoms

it has grown by more than 40% from the period 1988 to 1993 – indeed, net annual income growth was almost 80% in real terms only one year after privatisation (Figure 3).³ Furthermore, Telmex's operating income before tax in 1993 was 43% of its revenue,⁴ compared to an average 15% for other public telecommunication operators in the OECD area.

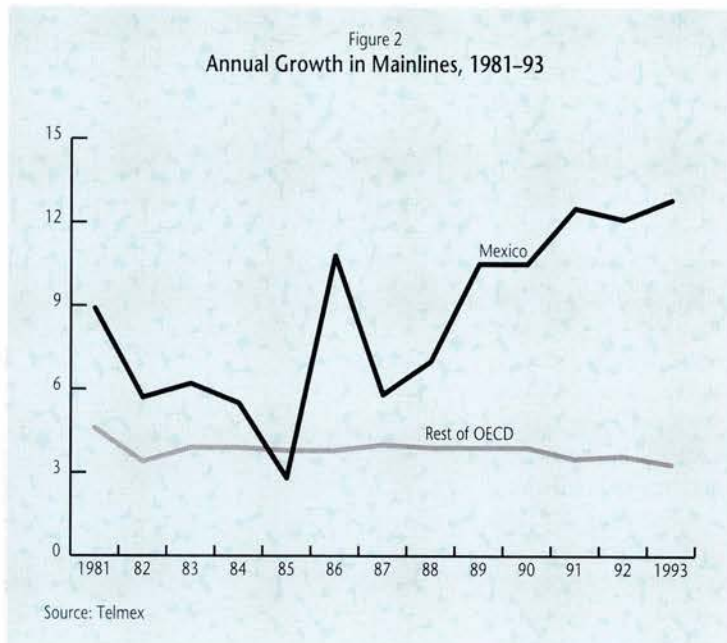
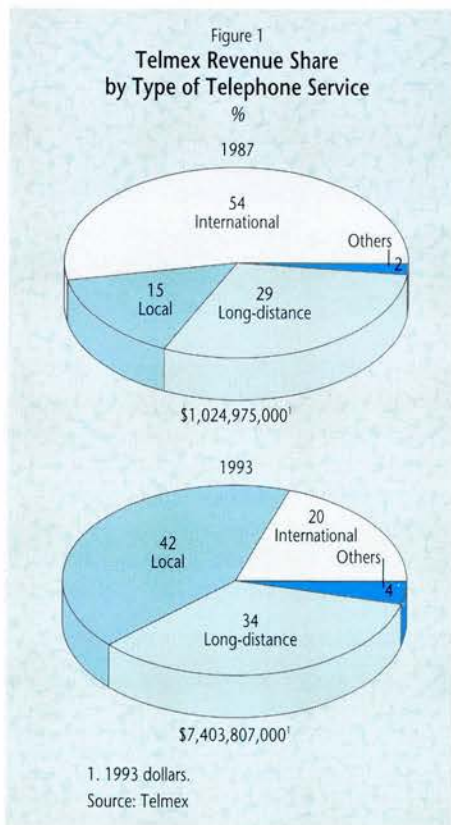
Mobile v. Fixed-link?

The opening of the mobile communication services market in 1990 proved very successful, virtually from the first day of service, and by the end of 1994 there were more than 560,000 subscribers. Indeed, the penetration rate in Mexico after five years was ahead of ten other OECD countries including Belgium, the Netherlands, Spain and Turkey after the same period of development. To an extent this growth may

reflect unmet demand on Telmex's fixed network but higher prices make mobile communication a relatively expensive substitute. The major difference with these countries was that Mexico had a competitive mobile market while all the others still had monopolies five years after the launch of service. New entrants into the Mexican market brought the expertise and capital required to develop the market.

The SCT has divided the country into nine regions and authorised two licenses in each of them. Telmex competes, under its trademark Telcel, in each region with one other cellular operator that holds a regional concession. The largest regional competitor to Telcel is Iusacell, a Mexican company partly owned by Bell Atlantic (a US telecommunication corporation).

By contrast, competition has not developed for local telephone service even though technically it has been open for the same amount of time as mobile communication. Although Telmex was obliged to interconnect other operators offering local service, potential rivals have been deterred by their inability to sell long-distance services. In practice, the continuing Telmex monopoly over these services has precluded the benefits that might otherwise have been achieved. Since the primary goal of telecommunication policy in Mexico is to extend service, and this was not a practical possibility without a framework for interconnection to determine such things as the price and conditions under which



Telmex will connect the networks of competitors, the benefits that competition has brought to mobile communication have not developed for fixed-link services.

The Mexican government has established a goal of reaching 20 mainlines per 100 inhabitants by the year 2000, and it recognises that it has to harness competition as a tool to expand service. In 1997 Telmex will accordingly be required to offer interconnection to other operators interested in competing in the long-distance market. After a strong case was put by the Federal Competition Commission, the government decided in 1994 to grant an unlimited number of licenses to offer long-distance telephone services in competition with Telmex. But many of the basic decisions, such as the price new operators will pay to gain access to the Telmex network, have yet to be taken. The government, moreover, has decided to charge entry fees to new operators. The size of this fee has still to be determined but the decision has given rise to concerns from the Competition Commission that it may deter prospective entrants.

The profitability of the telecommunication sector in Mexico has attracted interest from some

3. Securities and Exchange Commission, Annual Report Pursuant to Section 13 of the Securities Exchange Act of 1934, *Teléfonos de México*, Mexico City, February, 1993.

4. Annual Report, *Teléfonos de México*, Mexico City, 1993.

of the world's largest operators to form alliances with Mexican companies of which there are a growing number interested in telecommunication. AT&T is forming a joint venture in Mexico with the industrial conglomerate Alfa. MCI has teamed with Banacci, Mexico's largest financial institution (Banacci holds the largest private network in Mexico) and Sprint has announced an alliance with Telmex. Iusacell already has a joint venture with Bell Atlantic to provide roaming service in some states of the United States and Canada (in mobile telecommunication 'roaming' means being able to use the same handset in different countries). Other alliances have been entered into between Bancomer (the second-largest financial institution in Mexico) and GTE, as well as between Protexa and Motorola, to apply for licences to offer long-distance service.

Opening the long-distance market will also change the economics of providing local service. In the two years following the end of the duopoly in the United Kingdom in 1992, for example, cable television companies have added over 500,000 telephony customers and look set to reach one million by the end of 1995. Mexico's low penetration rates of telephone lines make this industry extremely attractive for investors new to telecommunication – there is a range of financial, tobacco, petrochemicals and manufacturing companies wanting to participate.

Indeed, Pulsar, one of Mexico's largest industrial conglomerates, has announced that it will enter the local market. Using the same wireless technology as Ionica in the United Kingdom and

Telecom Finland, Pulsar estimates that it can provide service to several million customers by the year 2000. Together with the stimulus that competition is likely to provide to Telmex's own network expansion, the government's target of 20 lines per 100 people could well be exceeded.



The Mexican approach to liberalising telecommunications has been different from the models pursued by most other countries with competitive markets. In recognition of the role of competition in increasing efficiency, the government is trying to develop a highly liberalised sector through opening the telecommunication market to any company which desires to invest in it.

All signs of the future growth of the Mexican market for telecommunication services are encouraging. The North American Free Trade Agreement, as well as other regional trade agreements, and the reduction of international long-distance tariffs in all OECD countries, have had a direct impact on the growth of international traffic in recent years. It is expected that the increasing openness of the Mexican economy, and the stimulus it will provide for domestic growth, will further increase national and international demand for telecommunication services.

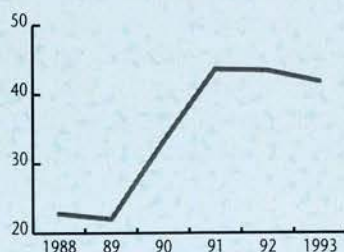
Furthermore, the expansion of these services represents a very large opportunity for investors. What is required now is an appropriate regulatory framework – which should include access to the existing network at a reasonable cost – to put principles into practice. Without it other companies will not be able to expand service: their customers would not be able to access others on the Telmex network at a fair price. Moreover, the proposed entry fee should not constitute a barrier for potential competitors. A more propitious policy would forgo what in practice would



The government realises that, to reach its goal of 20 mainlines per 100 inhabitants by the year 2000, it will have to open the long-distance market to competition.

be a tax on telecommunication users and instead facilitate an efficient expansion of service – a course likely to bring larger social and economic benefits to Mexico and assist in addressing the country's current financial crisis. ■

Figure 3
Telmex Operating Income, 1988-93
as % of revenue



Source: Telmex

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Financial Deregulation

Ketil Hviding

Financial deregulation has been growing apace in the OECD countries for some years now. This wave of liberalisation, and the increased reliance on the market that has resulted, seem also to have increased volatility. Do the gains in efficiency, lower costs and expanding demand for financial services come at the cost of a rise in systemic risk?¹

During the past two decades the financial systems in OECD countries have undergone extensive structural change, as a result of both regulatory reform and technological innovation. The substantial shift to more market-oriented financial systems was driven by a number of inter-related factors which made direct controls increasingly ineffective in achieving their intended purposes. The pressure on regulated financial institutions increased as financial innovation progressively eased the facility with which regulations could be circumvented: for example, corporate paper and bonds enabled companies to raise funds directly on capital markets, and offshore markets developed rapidly. In addition, the importance of flexibility in the setting of interest rates increased in the 1970s because of the emergence of inflationary problems and the growth of fiscal deficits.

The strength of these pressures was such that some degree of financial regulatory reform became unavoidable; indeed, all OECD countries have implemented at least some measures

of liberalisation over the past twenty years. A 'core' group of reforms common to the majority of countries involved the removal of most controls on credit, bank charges and interest rates, liberalisation of market-access, and the abolition of restrictions on the movement of foreign exchange.

These reforms were expected to carry important benefits, both easing problems of monetary control and improving the efficiency of the financial sector by promoting competition and removing distortions on the allocation of resources. Nonetheless, concerns have been raised as to whether these benefits have been realised and also as to the effects of deregulation on financial stability.

What Progress in Deregulation?

The array of regulations affecting the financial systems of most OECD countries in the 1960s and '70s can be broadly divided into two groups:

- those primarily affecting the ability of institutions to conduct their business at market-clearing prices (interest-rate and credit controls, invest-

ment and credit rules, capital-account controls)

- those affecting institutional boundaries and market access within the financial sector (line-of-business regulations, controls on ownership linkages and on cross-border market entry).

In general, the extent of deregulation in the first of these categories has been substantial; although some minor areas of restrictions remain, most such controls have been abolished in the majority of OECD countries. Moreover, the removal of capital controls and the increased internationalisation of the financial services industry has made any remaining restrictions relatively easy to avoid. But the process of liberalisation was not uniform and there was no single model of the deregulatory process that was broadly followed in all countries. With the exception of a few fore-runners which removed interest and remaining capital constraints as early as the late 1950s and '60s – Germany, Canada and the Netherlands – most countries did not start the process seriously before the late 1970s. In the United States, the United Kingdom, the Nordic countries, Australia and New Zealand the process was relatively quick and essentially complete by the mid-1980s. In southern Europe and Japan, by contrast, the deregulation tended to be somewhat more cautious and occurred over a longer period.

In the second broad group of regulations – those affecting institutional boundaries and barriers to competition – the extent of deregulation has been more limited. There has been a substantial (though incomplete) liberalisation of international market access in financial services; and there has been some liberalisation of barriers between institutional types in countries where these had been important, particularly in Canada, Japan and the United Kingdom, with an important further amount of liberalisation implied within Europe by the 'single-passport provision' of the Second Banking Directive of the European Community which came into force on 1 January 1993 and which ensures mutual

1. Malcolm Edey and Ketil Hviding, 'An Assessment of Financial Reform', Economics Department Working Paper No. 154, 1995 (available free of charge from the OECD Economics Department).



The stock-market crash in 1987, the biggest single disruption in the financial markets since the Second World War, was a sign that market behaviour cannot always be accurately predicted.

recognition of regulatory standards in the EC countries. The less extensive deregulation in rules affecting institutional boundaries reflects the view that the issues are more complex and the case for general liberalisation less clear.

Coping with Systemic Risk

The intended purposes of financial regulatory policies, as practised in OECD countries in the past, can be put into three main groups:

- to meet objectives of resource allocation
- to provide instruments of monetary control
- to correct perceived market failures and systemic externalities in the financial sector.

Although these categories are not mutually exclusive, in general terms the regulations that have been most comprehensively dismantled have been those primarily aimed at the first two of the above goals, consistent with the broad consensus among OECD governments that regulatory intervention in resource allocation is likely to be less efficient than market-based methods.

The corollary is that regulatory structures should be maintained (or adopted) where they are necessary to address identifiable market failures such as 'systemic risks' or externalities in monitoring activities, and can do so efficiently.

Systemic risk can arise when individual financial sectors take risks that threaten the stability of the financial system as a whole. Potential sources of such risk include:

- vulnerability of banks to depositor 'runs'
- risk in the payment system, as when a large participant fails to meet clearing obligations
- destabilising trading practices arising from 'pro-cyclical' trading practises, as, for example, with programme trading or dynamic hedging which are based on computerised execution of trades when prices reach a predetermined position.

A potential market failure can arise from the high cost to individuals of monitoring the risk characteristics of financial institutions; depositors thus have an incentive to 'free-ride' on the monitoring activities of others. The result could be under-investment in information and monitoring. In these circumstances, there may be a

case for regulators to monitor and classify financial institutions even when no issues of wider systemic safety are involved.

During the past decade prudential supervision and regulation have been substantially strengthened in most countries. An important development was the widespread adoption of the Basle accord on capital standards in banking. This was an agreement made between central banks and supervisory authorities in the Group of Ten countries which phased in a minimum capital ratio of 8% of risk-weighted assets over the period 1988–92. In addition, the Basle committee and a number of national supervisory authorities are currently investigating the establishment of capital standards for other types of financial activity, securities trading in particular.

A large part of the impetus for these changes has come from the perception that increased competition has added to systemic risk by allowing or encouraging financial institutions to accept a higher degree of risk (Table 1). Although the pre-deregulation systems of widespread controls in price and quantity were not primarily aimed at limiting systemic risk, they may have in some cases had that side-effect, by limiting competition and constraining banks to operate in low-risk segments of the market.

Economic Consequences

Two central aspects of the financial sector are its internal efficiency (the quality and cost of the services provided) and its impact on the allocative efficiency of the economy as a whole. In the absence of market failures, such as those derived from systemic risk or insufficient monitoring, financial deregulation could be expected to yield benefits in both areas.

Internal efficiency should have improved through the increased scope for competition in many parts of the financial sector. Similarly, data on transaction costs in securities markets show a clear downward trend, presumably reflecting financial innovation and deregulation. But gains in productivity are hard to measure, since there

Financial Deregulation

Table 1
The Expansion of Financial Derivative Markets, 1986-92
notional principal amounts in billion \$¹

| Instruments | 1986 | 1988 | 1990 | 1992 |
|--|--------------|--------------|--------------|--------------|
| Exchange-traded instruments | 583 | 1,307 | 2,292 | 4,641 |
| Interest-rate options and futures | 516 | 1,175 | 2,054 | 4,288 |
| Currency options and futures | 49 | 60 | 72 | 105 |
| Stock index options and futures | 18 | 72 | 166 | 248 |
| Over-the-counter instruments | 500 | 1,330 | 3,451 | 5,346 |
| Interest-rate swaps ² | 400 | 1,010 | 2,312 | 3,851 |
| Currency and interest/currency | 100 | 320 | 578 | 860 |
| Other | .. | .. | 561 | 635 |
| Grand total | 1,083 | 2,637 | 5,743 | 9,987 |
| Ratio of grand total to: | | | | |
| International claims of banks reporting to BIS | 0.27 | 0.47 | 0.76 | 1.34 |
| OECD GDP | 0.10 | 0.19 | 0.35 | 0.59 |

.. not available

1. Amounts outstanding at year-end.

2. Adjusted for dual reporting of both sides of transactions.

Source: BIS and OECD

is no generally agreed method of evaluating the volume of bank output – should, for example, a fall in the cost of the nominal output of the financial sector be recorded as reduced volume or as a fall in the price per unit? Moreover, simple interest margins do not generally take account of structural deterioration in the quality of the loan portfolios as the best customers take advantage of direct access to the capital markets (particularly important in the United States). Nonetheless, even if the measures are not definitive, a number of indicators of volume and costs of bank services suggest that substantial improvements in efficiency have taken place.

Although subject to similar problems of measurement, there is also some evidence that allocative efficiency has increased. In any case, the removal of direct controls on interest rates and credit ceilings should remove distortions in funding costs, thereby improving the allocation of investment. Moreover, capital-account liber-

2. Maurice Obstfeld, 'International Risk Sharing and Capital Mobility: Another Look', *Journal of International Money and Finance*, Vol. 11, February 1992.

3. Adrian Blundell-Wignall et al., 'Monetary Policy in Liberalised Financial Markets', *OECD Economic Studies*, No. 15, Autumn 1990.

alisation has opened up substantial opportunities for international portfolio diversification; several empirical studies suggest, for instance, that potential welfare gains from international diversification in equities is large. According to some estimates the aggregate gain varies from 0.25% of GDP to 11% of world consumption.² In spite of recent retractions, the trend increase in the volume of foreign shares held by mutual

and pension funds, in particular in the so-called 'emerging markets', is a reflection of such gains. Finally, decreased constraints on liquidity could be expected to improve consumer welfare by smoothing consumption through time, and there is statistical evidence that this may indeed have taken place.³

These benefits have to be weighed against the possible effects of deregulation on financial stability and market volatility. In the period since deregulation, a number of cases of failure in the financial sector have emerged (Table 2). Among the most prominent have been the savings and loan ('thrift') crisis in the United States and banking failures in the Nordic countries, as well as some serious banking difficulties in Japan, France and, most recently, Mexico. It can indeed be argued that the handling of financial liberalisation played some role in several of the failures, but international comparisons suggest it would be wrong to concentrate solely on financial liberalisation as an explanatory factor. Other important factors included poor

macro-economic management, interactions between financial deregulation and existing micro-economic distortions, and policies on capital standards and bank supervision.

There is a prominent example of the interaction between financial deregulation and micro-economic distortions in the problems in the banking sectors of the Nordic countries. In all four of the major Nordic countries – Denmark, Finland, Norway and Sweden – quantitative constraints on lending or ceilings on interest rates were removed at a time when a larger number of borrowers faced low or even negative borrowing rates after tax. This situation was a combined result of generous rules for deductibility of interest payments against tax and very high marginal rates of income tax. The net

Table 2
Costs of Public Rescue Operations
of Financial Institutions¹

| | Period | Total cost | |
|----------------------|---------|-------------------------|-----------------------|
| | | billion \$ ² | % of GDP ³ |
| Unites States | | | |
| Deposit insurance | 1980-92 | 195.0 ^a | 3.2 |
| Japan | | | |
| Deposit insurance | 1991-92 | 0.6 | 0.0 |
| Australia | | | |
| State governments | 1989-91 | 4.4 | 1.6 |
| Finland | | | |
| Central government | 1991-92 | 1.8 | 1.7 |
| Government funds | 1991-92 | 3.1 | 3.0 |
| Central bank | 1991-92 | 2.9 | 2.7 |
| Total | | 7.8 | 7.4 |
| Norway | | | |
| Government funds | 1988-92 | 3.2 | 2.8 |
| Central government | 1988-92 | 0.2 | 0.1 |
| Central bank | 1988-92 | 0.2 | 0.1 |
| Total | | 3.6 | 3.0 |
| Sweden | | | |
| Central government | 1991-93 | 12.7 | 5.2 |

1. The figures are based on official or widely accepted estimations and do not include more uncertain estimates relating to banking problems in, for example, France and Spain. Costs are estimated as perceived at the time of the capital injections and do not take account of any re-evaluations.

2. Cumulative cost, 1992 exchange rate.

3. GDP in 1992.

a. Present-value estimates of resolutions conducted by the FSILIC and the RTC (US\$180 billion) and lower-bound of estimates of Bank Insurance Fund losses (US\$15 billion).

Sources: BIS, CBO, IMF, national authorities and OECD estimates

Mary Evans Picture Library



The founding fathers of Barings Bank had never heard of financial derivatives.

effect was a sharp fall in the saving rate as large pent-up demand for debt-financed investment in real estate was unleashed. In terms of financial fragility in the banking sector the results differ between the Nordic countries, depending on requirements of capital ratios, quality of prudential supervision, macro-economic management and the timing of the deregulation. That the problems

experienced in Denmark were relatively smaller can partly be attributed to tight regulatory standards and high capital requirements – and earlier deregulation. In addition, Danish banks had traditionally been used to a more market-oriented environment than, for example, those in Norway.

In contrast with this increased fragility of institutions, there is no clear empirical evidence that average variations in market prices have been increasing in government bond markets. Obviously, there have been a number of instances of market disruption that have given rise to concern. The crash in the equity market in October 1987 was the biggest single disruption in the market since the Second World War, and is often cited as an example of excessive volatility. Economists have had some difficulty providing a satisfactory explanation for the crash in terms of economic fundamentals, for two reasons. First, no piece of economic news was released at the time of the crash which appears sufficient to explain such a sharp adjustment of market values and, second, the international transmission of the collapse cannot be ascribed to the change in a common 'fundamental' factor, such as increased expectations of inflation or changes in interest rates.

A noticeable feature of other disruptions in security markets during the past decade is that they occurred mainly in small and relatively new markets. There are examples in the failure of the 'junk' bond market in 1989, problems in the ECU market in 1992 and the collapse of the Swedish market in commercial paper in 1990 as a result of the default of several smaller

finance companies. More recent problems in the mortgage-backed security market in the United States and the Mexican equity and bond markets in 1994–95 can be added to this list.

Recent large losses arising from complex trading strategies – Procter and Gamble, Metallgesellschaft, Orange County and Barings, to mention a few – highlight the importance of increased transparency in derivative markets and improved internal control. The increased speed by which large market positions can be built-up calls for 'real time' risk-management systems and timely reaction from both regulators and central banks.

In general, systemic disruptions caused by banking losses or turbulence in the financial market have been successfully avoided by the policies chosen in dealing with crises. Governments and central banks have been prompt in supplying the liquidity deemed necessary and a high degree of protection has been given to depositors. In some cases, solutions were found by merging or liquidating banks, while in others, not least where larger banks faced insolvency, a combination of capital injections and increased government control was used. Prominent examples of this type of crisis management have been seen in the handling of the equity-market crash in 1987, the government take-over of the largest Norwegian banks and, more recently, the rescue package to Mexico. These policies contrast with the absence of deposit insurance and the generally tougher line that was taken in the 1920s and '30s, when banking panics were frequent and many depositors lost

all their money. Prompt action and relatively generous pay-outs have probably limited the overall economic cost of disruption but nonetheless run the risk of creating or sustaining incentives for institutions to count on government bail-outs in the future.

■ ■

An important lesson has been that financial innovations have made many types of regula-

tion increasingly difficult to enforce. Simplistic strategies of reversing the process of deregulation to deal with any consequences perceived as unsatisfactory are therefore unlikely to be workable. To the extent that risks to financial stability are a central concern of regulatory policies, those policies have to be directed at limiting the sources of excessive risk-taking in the way that least distort market activity.

The period since financial deregulation has also revealed important interactions between macro-economic policies and structural policies in the financial sector. The increased mobility of funds, both domestically and internationally, has increased the importance of macro-economic policies that are conducive to financial stability, since markets have become increasingly sensitive to policy uncertainties. Such uncertainties, indeed, can arise as much from apparent inconsistencies among different policy objectives as from current and prospective political difficulties. ■

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Austria

Challenges for the Business Sector

Alexandra Iwanchuk Bibbee

The Austrian business sector has long been characterised by relatively good performance in macro-economic fundamentals: unemployment and inflation have been low and productivity growth high. But these strengths have co-existed with weaknesses in sectors such as non-traded services (distribution, transport, telecommunications), agriculture, and the nationalised industries (mainly in basic metals, chemicals and petroleum refining). Relatively high prices, stubborn inflation, and low growth in employment betray the existence of micro-economic rigidities – traditionally including tight restrictions on both market entry and business operations. Prices in Austria, for example, have been between 5 and 40% higher than in other EU countries on a broad variety of goods and services.

To rectify this situation, the Austrian authorities have embarked on an ambitious and on-going programme of rationalisation, privatisation and deregulation. The process of structural adjustment and reform accelerated recently with the establishment of the European Economic Area (EEA) in 1994 and Austrian membership of the EU as of 1995. It has also been reinforced by

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intensifying competitive pressure from the opening of central and eastern Europe. The new competitive environment will require that the business sector adapt to meet these new challenges.¹

Adapting Patterns of Specialisation

Austria's pattern of specialisation within OECD manufacturing – emphasising resource- and labour-intensive production, to the relative neglect of science-based and other types of production with higher value-added – makes it vulnerable to emerging competition from central and eastern Europe and from east Asia. Austria is not alone in being dependent on low-technology industries, but the competitive challenge facing it may be more acute than elsewhere because of the much higher exposure of Austrian goods to competition from eastern Europe. Since the opening and reform of the economies of eastern Europe began in 1988, Austrian exports to eastern European countries have grown by 20% on average per annum, and imports by 15%. In addition, low labour costs in eastern Europe, coupled with a high-quality labour force, have induced a strong capital outflow: Austria's current share of total foreign direct investment flows to these countries –

11% – is extremely large given its share of GDP within the OECD (1%).

Such growing links in trade and investment are causing patterns of specialisation to shift. The severe capital deficiency in eastern countries has meant that the most competitive Austrian exports are to be found in the capital- and technology-intensive activities, such as machinery and transport equipment, where output, investment and employment are all tending to rise. Conversely, downward pressures on profits are being felt in sectors competing with imports from the east, mainly in labour- and resource-intensive areas such as basic metals and textiles. Output and employment there are tending to fall. The costs of adjustment may ultimately be substantial because of the regional concentration of industries, sector-specific skills and capital stocks.

In spite of an undeniably heavy burden of adjustment in these exposed sectors, Austria's long-term interests are still best served by working toward the removal of EU non-tariff barriers against the eastern European economies and their further integration with the European Union. A wealthier eastern Europe arising from freer access to EU markets and freer flows of factors of production can only improve Austria's own welfare and economic security. By the same token, the potential advantages of growing trade and investment links with eastern Europe are high: large gains in terms of trade deriving from access to these countries' low labour- and resource-costs; new and growing markets for Austrian exports; and productivity gains arising from the development of alternative patterns of specialisation, based on the more effective use of Austria's financial and human resources, and placing more stress on capital- and knowledge-intensive activities.

1. *OECD Economic Surveys: Austria*, OECD Publications, Paris, 1995.

2. John Pratt, 'Expanding Choice in Austrian Education', *The OECD Observer*, No. 186, February/March 1994.

Maximising the net gains from trade with eastern Europe, and indeed other non-OECD countries, requires an unhindered flow of resources – both financial and human – into more innovative and higher-value added activities, such as electrical machinery, optics, pharmaceuticals and scientific instruments. There is some evidence that the innovative capacity of the Austrian business sector is limited by distortions in the allocation of capital and insufficient availability of R&D and production skills, as well as the small size of the domestic market. Indeed, per capita spending on R&D is only half that in Switzerland and Germany, and growth in total factor productivity has been only about half the OECD average since 1980. But this low growth has been offset by the relatively high ratio of investment to GDP (26% in 1992), allowing a growth rate in labour productivity that has been around the OECD average.

EU membership may spur innovation by expanding markets and speeding-up deregulation. But improving the availability of financial and human capital may require additional policy initiatives. Priorities here are the development of effective markets for equity and venture capital; completing the elimination of distorting credit subsidies; improved quality controls in the funding of university research and vocational training programmes; stronger emphasis on post-secondary education;² and better advice and infrastructure support, especially to smaller firms.

Expanding the Service Sector

As a result of these trends, and of efforts begun in the mid-1980s to reform and (ultimately) privatise the nationalised industries, the manufacturing sector in Austria has been shrinking. With agriculture also in secular decline, the counterpart has been a growing service sector. Nonetheless, as in much of OECD Europe, the

expansion of services has been hampered by high barriers to entry and lack of competition. Austrian law has traditionally embodied a large number of regulations governing both market entry (such as certification requirements and operating franchises) and business operations (such as restrictions on price-setting and opening hours for retail establishments).

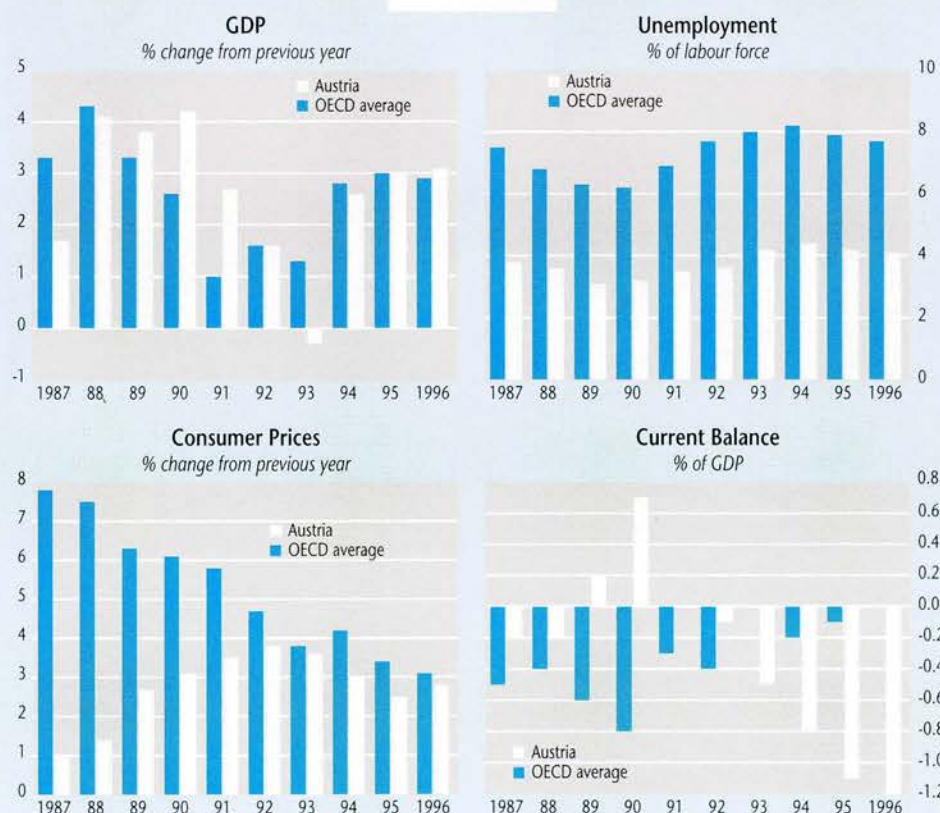
The high share of manufacturing employment in total business-sector employment may thus be (at around 35%) linked to low entry and exit rates of businesses, indicating a relative lack of dynamism. If these trends continue, structural unemployment could ratchet up to unacceptable volumes. The key objective of structural reform should therefore be to increase the job-creating

potential of services, while creating the conditions for industry to adapt to the more competitive climate.

Enhancing Competition

Membership of the EU should help open up several previously sheltered sectors such as telecommunications, road transport, distribution, construction and professional services. That will allow easier entry of new firms, and thus increase competition, and stimulate the growth of existing firms, giving further economies of scale and scope. Moreover, enhanced competi-

Indicators



Austria

Challenges for the Business Sector



With Austria's membership of the European Union and competition from the East, the business sector will have to become more competitive.

tion as a result of EU membership should help to eliminate former anti-competitive practices, such as prohibition of parallel imports (namely, direct purchases by individuals abroad) and exclusive supplier and sales arrangements, thereby

reducing currently high profit margins and limiting price discrimination (the ability to charge different prices in different markets).

Austria has already enacted a large number of policy reforms in line with EU guidelines

on market entry. Earlier restrictive licensing conditions have been abolished in most sectors (including wholesale and retail trade, value-added telecommunications services, construction). Although certification requirements for entry remain in force for Austrians, foreigners have only to demonstrate comparable standards of qualification, in accordance with EU rules. In construction, government procurement contracts must now be advertised across the EU, ending the earlier practice of giving preference to local firms. In retail trade, several laws prohibiting price competition have been abolished (though shop opening hours remain highly regulated), restrictive zoning laws are now to conform to EU rules, and parallel imports from other EU countries are permitted. In wholesale trade, the entry into force of the EU common external tariff and common agricultural policies will respectively lower import and farm-gate prices, the latter by some 20%.


Judged by conventional macro-economic indicators, the Austrian economy has so far been among the better performers in the OECD. There are signs that, before entry into the EU, this relatively favourable position was being eroded in some respects. EU membership should go part way to correcting this trend, by opening up the economy to stronger competition, reducing regulatory hindrances, and increasing the flexibility of response to the challenge from the East. The economy is thus in a position to exploit new opportunities while building on its traditional strengths. ■

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Indicators




| AUSTRALIA | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q3 94 | 2.3 | 6.3 |
| Leading Indicator | Dec. 94 | -0.4 | 2.5 |
| Consumer Price Index | Q4 94 | 0.8 | 2.5 |
| | | current period | same period last year |
| Current Balance | Feb. 95 | -1.14 | -0.40 |
| Unemployment Rate | Feb. 95 | 8.9 | 10.4 |
| Interest Rate | Feb. 95 | 8.15 | 4.80 |



| AUSTRIA | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 3.9 | 3.0 |
| Leading Indicator | Jan. 95 | -0.1 | 7.1 |
| Consumer Price Index | Feb. 95 | 0.5 | 2.4 |
| | | current period | same period last year |
| Current Balance | Dec. 94 | 0.21 | -0.16 |
| Unemployment Rate | Mar. 95 | 7.0 | 7.0 |
| Interest Rate | Jan. 95 | 5.12 | 5.46 |



| DENMARK | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q3 94 | 5.6 | 3.0 |
| Leading Indicator | Aug. 94 | -0.3 | 10.8 |
| Consumer Price Index | Feb. 95 | 0.4 | 2.3 |
| | | current period | same period last year |
| Current Balance | Q4 94 | 0.10 | 0.55 |
| Unemployment Rate | Jan. 95 | 10.7 | 12.5 |
| Interest Rate | Feb. 95 | 6.00 | 6.20 |



| GERMANY | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 1.7 | 3.0 |
| Leading Indicator* | Feb. 95 | -0.6 | 5.6 |
| Consumer Price Index* | Mar. 95 | 0.1 | 2.3 |
| | | current period | same period last year |
| Current Balance | Dec. 94 | -3.69 | -2.01 |
| Unemployment Rate | Feb. 95 | 11.0 | 11.6 |
| Interest Rate | Mar. 95 | 5.07 | 5.84 |

* Ex-FRG

Definitions

Leading Indicator A composite indicator, based on other indicators of economic activity (employment, sales, income, etc.), which signals cyclical movements in industrial production from six to nine months in advance


Consumer Price Index Measures changes in average retail prices of a fixed basket of goods and services \$ billion; not seasonally adjusted except for the United States

Current Balance % of labour force – ILO standardised unemployment rate; national definitions for Austria, Denmark, Iceland, Mexico, Switzerland and Turkey; seasonally adjusted apart from Austria, Iceland, Mexico and Turkey

Unemployment Rate Three months, except for Greece (twelve) and Turkey (six)

Interest Rate

Source: Main Economic Indicators, OECD Publications, Paris, April 1995; for further information, contact The OECD Observer.




| BELGIUM | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | 1993 | | -1.7 |
| Leading Indicator | Feb. 95 | -2.4 | -0.2 |
| Consumer Price Index | Feb. 95 | 0.3 | 1.8 |
| | | current period | same period last year |
| Current Balance | Q4 94 | 2.40 | 2.97 |
| Unemployment Rate | Feb. 95 | 10.3 | 10.2 |
| Interest Rate | Mar. 95 | 6.34 | 6.15 |




| FINLAND | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 4.7 | 4.4 |
| Leading Indicator | Nov. 94 | 1.1 | 9.1 |
| Consumer Price Index | Feb. 95 | 0.3 | 1.8 |
| | | current period | same period last year |
| Current Balance | Q4 94 | -0.02 | 0.32 |
| Unemployment Rate | Jan. 95 | 17.9 | 19.5 |
| Interest Rate | Feb. 95 | 5.99 | 4.82 |



| GREECE | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | 1993 | | -0.1 |
| Leading Indicator | Feb. 95 | 0.8 | 4.7 |
| Consumer Price Index | Feb. 95 | -0.4 | 10.4 |
| | | current period | same period last year |
| Current Balance | Q3 94 | 1.35 | 1.61 |
| Unemployment Rate | | .. | .. |
| Interest Rate | Jan. 95 | 17.50 | 19.75 |




| CANADA | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 1.4 | 5.6 |
| Leading Indicator | Jan. 95 | -0.3 | 4.3 |
| Consumer Price Index | Feb. 95 | 0.5 | 1.8 |
| | | current period | same period last year |
| Current Balance | Q4 94 | -2.80 | -5.19 |
| Unemployment Rate | Feb. 95 | 9.6 | 11.0 |
| Interest Rate | Feb. 95 | 8.10 | 3.83 |




| FRANCE | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 0.6 | 3.6 |
| Leading Indicator | Mar. 95 | -1.2 | -1.0 |
| Consumer Price Index | Feb. 95 | 0.4 | 1.7 |
| | | current period | same period last year |
| Current Balance | Q4 94 | 3.43 | 3.61 |
| Unemployment Rate | Feb. 95 | 12.3 | 12.4 |
| Interest Rate | Feb. 95 | 5.82 | 6.30 |




| ICELAND | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | 1994 | | 1.9 |
| Leading Indicator | | .. | .. |
| Consumer Price Index | Mar. 95 | -0.2 | 1.4 |
| | | current period | same period last year |
| Current Balance | Q3 94 | 0.07 | 0.05 |
| Unemployment Rate | Jan. 95 | 6.8 | 7.5 |
| Interest Rate | Jan. 95 | 6.60 | 5.23 |




| IRELAND | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | 1994 | | 7.6 |
| Leading Indicator | Dec. 94 | 2.3 | 15.2 |
| Consumer Price Index | Q1 95 | 0.8 | 2.5 |
| | | current period | same period last year |
| Current Balance | Q2 94 | 0.95 | 1.03 |
| Unemployment Rate | Feb. 95 | 14.4 | 15.1 |
| Interest Rate | Feb. 95 | 6.44 | 6.14 |



| ITALY | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q3 94 | 1.0 | 3.7 |
| Leading Indicator | Feb. 95 | -0.1 | 0.5 |
| Consumer Price Index | Feb. 95 | 0.8 | 4.3 |
| | | current period | same period last year |
| Current Balance | Jan. 95 | -2.53 | -1.00 |
| Unemployment Rate | Q3 94 | 11.8 | 10.3 |
| Interest Rate | Dec. 94 | 8.51 | 8.85 |




| JAPAN | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | -0.9 | 0.9 |
| Leading Indicator | Jan. 95 | -1.0 | 6.1 |
| Consumer Price Index | Feb. 95 | -0.4 | 0.2 |
| | | current period | same period last year |
| Current Balance | Jan. 95 | 3.69 | 6.83 |
| Unemployment Rate | Jan. 95 | 2.9 | 2.7 |
| Interest Rate | Feb. 95 | 2.29 | 2.09 |




| LUXEMBOURG | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | 1994 | | 2.6 |
| Leading Indicator | Feb. 95 | -1.0 | 7.0 |
| Consumer Price Index | Mar. 95 | 0.1 | 2.3 |
| | | current period | same period last year |
| Current Balance | | .. | .. |
| Unemployment Rate | | .. | .. |
| Interest Rate | | .. | .. |




| MEXICO | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 8.5 | 4.0 |
| Leading Indicator | | .. | .. |
| Consumer Price Index | Feb. 95 | 4.2 | 14.3 |
| | | current period | same period last year |
| Current Balance | Q4 94 | -7.44 | -5.35 |
| Unemployment Rate | Jan. 95 | 4.5 | 3.8 |
| Interest Rate | Feb. 95 | 41.65 | 9.80 |




| NETHERLANDS | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q3 94 | 0.5 | 1.9 |
| Leading Indicator | Jan. 95 | 0.2 | 4.8 |
| Consumer Price Index | Feb. 95 | 0.5 | 2.4 |
| | | current period | same period last year |
| Current Balance | Q3 94 | 3.02 | 2.01 |
| Unemployment Rate | Jan. 95 | 7.2 | 7.3 |
| Interest Rate | Mar. 95 | 5.10 | 5.32 |




| NEW ZEALAND | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q2 94 | 0.7 | 3.6 |
| Leading Indicator | | .. | .. |
| Consumer Price Index | Q4 94 | 1.2 | 2.8 |
| | | current period | same period last year |
| Current Balance | Q3 94 | -0.99 | -0.61 |
| Unemployment Rate | Q4 94 | 7.5 | 9.2 |
| Interest Rate | Mar. 95 | 9.42 | 5.43 |




| NORWAY | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 7.4 | 4.5 |
| Leading Indicator | Oct. 94 | 0.6 | 4.3 |
| Consumer Price Index | Feb. 95 | 0.4 | 2.6 |
| | | current period | same period last year |
| Current Balance | Dec. 94 | 0.15 | -0.22 |
| Unemployment Rate | Q4 94 | 5.3 | 5.7 |
| Interest Rate | Mar. 95 | 5.39 | 5.25 |




| PORTUGAL | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 93 | 1.6 | -0.7 |
| Leading Indicator | Oct. 94 | 1.3 | 11.6 |
| Consumer Price Index | Jan. 95 | 1.2 | 4.5 |
| | | current period | same period last year |
| Current Balance | Q4 93 | 0.02 | -0.58 |
| Unemployment Rate | Q4 94 | 6.8 | 5.9 |
| Interest Rate | Feb. 95 | 9.90 | 9.76 |




| SPAIN | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 0.8 | 2.8 |
| Leading Indicator | Jan. 95 | 0.1 | 11.3 |
| Consumer Price Index | Feb. 95 | 0.5 | 4.8 |
| | | current period | same period last year |
| Current Balance | Jan. 95 | 1.52 | 0.35 |
| Unemployment Rate | Q4 94 | 23.5 | 23.5 |
| Interest Rate | Feb. 95 | 8.60 | 8.62 |




| SWEDEN | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 20.1 | 3.5 |
| Leading Indicator | Feb. 95 | -0.9 | -2.5 |
| Consumer Price Index | Feb. 95 | 0.4 | 2.6 |
| | | current period | same period last year |
| Current Balance | Jan. 95 | 0.34 | 0.25 |
| Unemployment Rate | Jan. 95 | 8.2 | 8.8 |
| Interest Rate | Mar. 95 | 8.67 | 7.04 |




| SWITZERLAND | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 0.6 | 2.6 |
| Leading Indicator | Feb. 95 | 0.0 | 2.4 |
| Consumer Price Index | Feb. 95 | 1.0 | 1.6 |
| | | current period | same period last year |
| Current Balance | | .. | .. |
| Unemployment Rate | Feb. 95 | 4.1 | 4.9 |
| Interest Rate | Feb. 95 | 3.77 | 4.04 |



| TURKEY | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | -23.4 | -4.2 |
| Leading Indicator | | .. | .. |
| Consumer Price Index | Feb. 95 | 5.7 | 130.0 |
| | | current period | same period last year |
| Current Balance | Q4 94 | 0.34 | -1.58 |
| Unemployment Rate | Apr. 94 | 8.3 | 7.3 |
| Interest Rate | Feb. 95 | 107.42 | 100.00 |



| UNITED KINGDOM | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 0.7 | 3.9 |
| Leading Indicator | Feb. 95 | -0.1 | 2.0 |
| Consumer Price Index | Feb. 95 | 0.6 | 3.4 |
| | | current period | same period last year |
| Current Balance | Q4 94 | 3.83 | -0.84 |
| Unemployment Rate | Feb. 95 | 8.5 | 9.9 |
| Interest Rate | Feb. 95 | 6.75 | 5.22 |



| UNITED STATES | | | |
|------------------------|---------|------------------------|-----------------------|
| | period | % change from previous | |
| | | period | year |
| Gross Domestic Product | Q4 94 | 1.2 | 4.1 |
| Leading Indicator | Feb. 95 | -0.2 | 2.3 |
| Consumer Price Index | Feb. 95 | 0.4 | 2.9 |
| | | current period | same period last year |
| Current Balance | Q4 94 | -44.76 | -30.59 |
| Unemployment Rate | Feb. 95 | 5.4 | 6.5 |
| Interest Rate | Mar. 95 | 6.15 | 3.77 |

Ministerial Communiqué

The Council of the OECD met on 23 and 24 May 1995 at Ministerial level. The meeting was chaired by Pedro Solbes, Minister of Economics and Finance, Javier Gomez-Navarro, Minister of Trade and Tourism, and Javier Solana, Minister of Foreign Affairs, of Spain. Vice-Chairmen were Yohei Kono, Deputy Prime Minister, Minister for Foreign Affairs, Ryutaro Hashimoto, Minister of International Trade and Industry, and Masabiko Komura, Minister of State for Economic Planning, of Japan, and Sigbjørn Johnsen, Minister of Finance, and Grete Knudsen, Minister of Trade and Shipping, of Norway. Prior to the meeting, the Chairman led consultations with the Business and Industry Advisory Committee (BIAC) and the Trade Union Advisory Committee (TUAC) to the OECD; both organisations submitted statements for the consideration of Ministers.

Significant economic recovery has been achieved in most OECD economies since Ministers met in 1994. Inflation is low and there is growing evidence of declining unemployment, although unemployment rates remain unacceptably high in a number of countries. OECD governments seek sustainable development and non-inflationary growth. A good mix of economic, social and environmental policies, when consistent with budget restraint, will create jobs, bring prosperity and strengthen our societies.

Commitments by Ministers

Building on these developments, and the interrelationships world-wide among economic development, trade liberalisation, technological advances, employment growth, environmental protection and social cohesion, Ministers undertake to co-operate in the following strategy:

- to sustain non-inflationary growth through macro-economic policies and structural reforms that reinforce each other, thereby promoting shared prosperity and generating a stable economic and financial environment
- to fight unemployment as a top priority, particularly that of the low skilled, youth and the long-term unemployed, which can lead to social exclusion; and to enhance income potential, particularly

for the low end of the scale; this will help to strengthen our societies

- to maintain price stability through sound monetary policy
- to meet the pressing need for fiscal consolidation and sustainable fiscal positions in order to free national savings for more productive investment and to help address issues such as the emerging demands of our ageing populations as well as our increasing health care requirements
- to maintain efforts to improve implementation of these policies, and continue to co-operate on exchange rates, thereby helping to promote greater stability in financial markets, to preserve the ongoing recovery, and to contribute to continued expansion of international trade and investment
- to improve the ability to adjust and compete in a globalised world economy through strengthened efforts towards structural reform, thereby promoting greater economic flexibility, employment growth and higher living standards; priority areas include better education and training (including lifelong learning), improving the functioning of labour markets (including, as appropriate, active labour market policies) and creating conditions in which small and medium-sized enterprises can flourish
- to promote regulatory reform and improve transparency in both government policies and markets

- to further promote adequate prudential supervision of banking and non-banking financial institutions and greater transparency in financial markets
- to develop policies that fully exploit the contributions of advances in technology, particularly information technology, to growth and employment; and that promote innovation in our societies
- to make further progress towards a better environment.

As a part of the strategy Ministers also commit to the following elements to strengthen the multilateral system:

- implement fully the Uruguay Round Agreements and ensure a strong and effective World Trade Organisation (WTO) with a well-functioning and respected dispute settlement mechanism
- re-affirm their commitment to resist protectionism in all its forms; remove impediments (including administrative and structural ones) to the openness of national markets to global competition
- maintain the momentum of trade liberalisation as a vehicle for economic growth through:
 - the successful completion of current negotiations, including those in the services sectors by the dates foreseen in the General Agreement on Trade and Services (GATS) (by the end of June for financial services), and the follow-up

actions and negotiations foreseen in the Uruguay Round Final Act

- work towards increased transparency, where appropriate, of WTO proceedings
- actively pursuing, through the necessary consensus building, the possibilities of new initiatives to reduce in a global and balanced way trade barriers and other trade distorting measures
- active preparation for an ambitious WTO Ministerial meeting in Singapore in 1996
- promote initiatives for domestic regulatory reform aimed at positive structural adjustment, especially when they lead to the liberalisation of trade and investment flows
- the immediate start of negotiations in the OECD aimed at reaching a Multilateral Agreement on Investment by the Ministerial meeting of 1997, which would:
 - provide a broad multilateral framework for international investment with high standards for the liberalisation of investment regimes and investment protection and with effective dispute settlement procedures
 - be a free-standing international treaty open to all OECD Members and the European Communities, and to accession by non-OECD Member countries, which will be consulted as the negotiations progress
- prepare for discussions on investment in the WTO which it would be appropri-

ate to envisage in the future, and encourage the OECD to co-operate with the WTO to this end

- work to obtain ratification and implementation, by participants, of the 'Agreement Respecting Normal Competitive Conditions in the Commercial Shipbuilding and Repair Industry', adopted at OECD since their last meeting
- fully adhere to the letter and spirit of their agreed tied aid credit disciplines.

In view of global interdependence and the continuing importance of development co-operation, Ministers commit to:

- support the integration of developing countries and economies in transition into the world economic system
- pursue the strategic orientations set out in the Development Assistance Committee's High Level Statement on Development Partnerships in the New Global Context, including the continuing commitment to mobilise as many public resources as possible and to encourage private flows to back the self-help efforts of developing countries.

Ministers' Requests to the OECD

To facilitate the implementation of the strategy outlined above, Ministers request the OECD to:

- effectively integrate macro-economic and micro-economic analyses and policy recommendations; and monitor their implementation
- continue to work towards a better understanding of the economic implications of the functioning of international financial markets
- as set out in the report *The OECD Jobs Study: Implementing the Strategy*,¹ monitor the implementation of country-specific policy recommendations based on that strategy and complete the planned thematic reviews on active labour market policies; taxes and benefits; interactions between macro-economic and structural policies; and technology, productivity and job creation; and present a report to Ministers in 1996
- examine the possibility of developing comparable and standard measures of human capital investment and common performance indicators of such investment, with a report back to Ministers in 1996
- consolidate and analyse the policy implications of ageing populations with an initial report to Ministers by 1996
- pursue and integrate work on the various aspects of the reform of social protection systems and services, and on migration
- continue work on territorial development policies to respond to problems of restructuring of localities, cities and regions

- examine further the effects of technology, advances in knowledge and innovation on productivity, growth and employment, and recommend policy principles for knowledge-based economies; initiate similar work on the Global Information Society – Global Information Infrastructure in consultation, where appropriate, with relevant non-governmental partners; and provide Ministers with reports on both issues in 1996
- continue to identify appropriate and cost-effective ways for achieving environmental goals, *inter alia* through a better internalisation of environmental costs and the application of the Polluter Pays Principle, and continue to enhance the mutual compatibility of economic and environmental policies, looking towards the 1996 meeting of OECD Ministers of Environment; contribute to the follow-up to the United Nations Framework Convention on Climate Change, including the implementation and development of the Climate Technology Initiative in co-operation with the International Energy Agency and the private sector
- continue to pay special attention to the policy implications of globalisation and interdependence across the full spectrum of its ongoing work.

Aimed at strengthening the multilateral system, Ministers invite the OECD to:

¹. See p. 43.

- continue interdisciplinary work and analysis of the 'new' trade issues and of the openness of national markets to global competition; as part of this, consider the development of a broader concept of market access which encompasses not only public and private impediments to market entry but also the conditions for investing and conducting business in each market

- in co-operation with the WTO, continue its successful work on trade and environment with a view to deepening analysis and helping to build consensus on options or recommendations for further promoting the compatibility and reinforcement of trade and environmental policies
- proceed with its work on agricultural policy reform

- continue analysis and dialogue on competition policy and the interactions of trade and competition policies, on export credits and on industrial subsidies; complete quickly the revised transfer pricing guidelines

- continue actively and diligently the work on trade, employment and labour standards, as called for by Ministers in 1994

- pursue its monitoring of the progress of regional integration, to help ensure that regional trade initiatives are consistent with the newly-strengthened multilateral trading system

- examine the significance, direction and means of reform in regulatory regimes, and undertake exploratory work on corporate governance

- strengthen work on bribery and corruption in international transactions and, recognising that *inter alia* an effective

approach, where consistent with national legal regimes, could be to make such bribery a crime, provide the 1996 Ministerial meeting with a full progress report on the implementation of the 1994 OECD Recommendation.

In an increasingly interdependent world, Ministers request the OECD to:

- elaborate the strategic orientations for development co-operation into the next century in the light of changing economic, human, environmental and technological conditions

- remain open and selective in its relations with non-member economies; maintain the tradition of high standards for OECD membership and for participation by non-members in the work of committees and develop flexibly other forms of dialogue and co-operation with non-members on the basis of mutual interest

- bring the accession processes of the Czech Republic, Hungary, Poland, the Slovak Republic and Korea to their conclusion as soon as each of these countries is ready and able to assume all the responsibilities of OECD membership and thereby to participate in its network of disciplines

- continue actively to implement the Declaration on Co-operation between the Russian Federation and OECD

- continue to develop its dialogue and co-operation with China in the light of the Secretary-General's forthcoming mission to Beijing

- maintain its intensifying co-operation with other economies in transition in

Europe and Asia, including specific programmes and special activities begun with some countries in 1995

- develop the successful dialogue with the Dynamic Non-Member Economies, including its recent expansion in some activities to new participants; continue to co-operate with those Latin American countries with which mutual interests exist

- work to establish a wider variety of relationships by means of a forum for dialogue with emerging market economies; the structure to promote this dialogue will function in accordance with the principles, objectives and rules of the OECD

- examine further, with the completion of the first phase of the Organisation's Study on Linkages between OECD and Major Developing Economies, more specific aspects and impacts of such linkages and the implications on OECD Members' policy options in the future.

••

Ministers call upon the OECD to establish clear priorities in its work in order to make the best use of available resources. They consider that the OECD is well equipped to face new challenges. The Organisation is characterised by a proven capacity for policy analysis based on broadly shared political, economic and social views. It also has an ability to adapt its activities when new needs arise.

Implementing the Jobs Strategy

A year ago OECD Ministers endorsed the *Jobs Study* which proposed a wide-ranging programme of actions to reduce unemployment and boost employment growth on a durable basis.¹ How far have Member countries moved since then, and what remains to be done?

Economic recovery has brought with it growth of employment but at a less rapid pace compared with previous episodes of cyclical growth. Unemployment is falling, but slowly, and very little inroad has been made into the most intractable problems; even with the recovery, unskilled and low-skilled workers are increasingly threatened by precarious employment, long-term unemployment, and social exclusion. The central finding of the *Jobs Study* remains valid – the pressing need to deal with the inability of our economies and the workforce to adjust sufficiently rapidly to changing circumstances. Recent trends have also confirmed the long-standing differences in job-creation performance across OECD countries and the different strains that, in different ways, threaten to weaken the social fabric of all Member countries.

With high and persistent unemployment still looming large for the coming years, especially in continental Europe, governments must place top priority on their efforts to exploit efficiently the synergy between macro-economic and structural policies which will promote sustainable and job-creating growth. This should allow OECD economies to reduce the gap that exists between their needs and their abilities to adapt to new technologies, intense competition and globalisation – all sources of vast opportunity in the future.

But the challenge is great. High levels of unemployment and the ensuing social tensions cause pressure to build for various types of 'quick fixes' such as protectionism or other inappropriate policies that slow the pace of adjustment.

The OECD continues to support its Member countries in meeting this challenge. Following up on the *Jobs Study*, it has entered the phase of active, detailed, and multi-lateral monitoring of the need for and implementation of reforms. The specific policy requirements for each country are being worked out; these are being progressively

enriched by the results of extensive cross-country analysis, for example on technology, productivity and employment, active labour-market policies and the interactions between tax and benefit systems.

This country-specific analysis serves as the basis for an on-going process of multilateral surveillance. Most options for promoting employment in a sustainable way involve difficult trade-offs and potential pitfalls. At virtually every turn, governments face problems of policies that are not doing enough to help – or unintentionally are downright damaging to – the people who most need help.

For example, governments can try to encourage low-skilled workers to accept low-paid jobs by providing in-work benefits in order to assure a socially acceptable income. But in doing this, governments have to be very careful to avoid exacerbating poverty traps – circumstances in which people who have a low wage job are discouraged from trying to get a better one.

The same kind of trade-off applies for regulations designed to guarantee protection to those who have jobs. While these can help promote long-term attachments of workers to their firms, thereby fostering investment in skills, they may also discourage the recruitment of the unemployed.

Each government can learn from the experience of the others – from their successes, and failures. The OECD 'peer review' process – multilateral surveillance of countries by one another – provides a unique tool to that effect.

The progress that governments are making in this area is reviewed in a new publication, *The Jobs Study: Implementing the Strategy*,² which was discussed by OECD Ministers at their recent meeting.

1. *The OECD Jobs Study: Facts, Analysis, Strategies and The OECD Jobs Study: Evidence and Explanations*. OECD Publications, Paris, 1994.

2. *The OECD Jobs Study: Implementing the Strategy*. OECD Publications, Paris, 1995.

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Chung H. Lee
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Giorgio Barba Navaretti, Riccardo Faini and Aubrey Silberston

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linkage-intensive development strategy, the MDEs have a growing stake in a liberal and rule-based global economic order. They can be expected to take more responsibility for global governance in trade and investment, environment, security and international migration.

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See Norberto Bottani, 'Comparing Educational Output', **The OECD Observer**, No. 193, April/May 1995.

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The International Energy Agency (IEA) was created in 1974 following the major oil shock of 1973. Its main initial objective was to ensure effective response to any further disruption of oil supplies. While much has changed since that time and the IEA is constantly adapting to new circumstances, safeguarding the energy security of its 23 member countries remains the central mission of the IEA. The key to that effort is the IEA's emergency response system.

With oil imports of IEA countries expected to rise steadily for many years, and most of the increase coming inevitably from the Middle East, this system must be ready for swift and efficient implementation in case of need.

Member governments are committed to holding oil stocks equivalent to 90 days of net imports. In the case of a major actual or imminent oil disruption, one or more of an integrated set of emergency response measures can be implemented to provide a rapid and flexible response, as was done in the 1990-91 Gulf Crisis. These measures include stockdraw, demand restraint, fuel switching, extra oil production, and sharing of available supplies.

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The Energy Charter Treaty

February 1995

The Energy Charter Treaty, signed at Lisbon on December 17, 1994, by representatives of 41 countries and the European Communities after several years of negotiations, is an unprecedented agreement establishing a legal framework for investment and trade in energy among OECD countries, republics of the former Soviet

Union, and countries of Eastern Europe. The Treaty also addresses a range of other subjects such as transit of energy goods, competition, and the environment, and provides for the creation of an Energy Charter Conference and Secretariat. The Treaty text is a complex document with 14 annexes. (61 95 04 1) ISBN 92-64-14384-X, 36pp. France: FF60; elsewhere: FF80 US\$14 DM24

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Proceedings of an International Workshop organised by the Nuclear Energy Agency in co-operation with the Environment Directorate, Paris, 1-2 September 1994
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Saclay (France), 27-29 April 1993, organised by the OECD Nuclear Energy Agency in co-operation with The Shielding Laboratory of the French CEA, Saclay (France) and EPIC Radiation Shielding Information Center (United States)
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See Helgard Wienert, 'Industrial Evolution in Hungary', **The OECD Observer**, No. 193, April/May 1995.

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See Yutaka Imai, 'The United Kingdom: The National Health System', **The OECD Observer**, No. 190, October/Novem-

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See Bernard Lane and Kenji Yoshinaga, 'Niche Markets for the Rural World', **The OECD Observer**, No. 190, October/November 1994.

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This publication, covering 20 countries and 132 cities, concludes that sustainable urban development requires strong new policy instruments, a mix of better traffic management, improved land-use planning, higher standards and significantly higher charges for using cars. It proposes specific ways to mix these policies and evaluates the potential improvement for pollution and congestion.

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Trade and Labour Standards: A Review of the Issues

Gary Fields

April 1995

This paper was presented at an informal meeting on Trade and Labour Standards organised by the Netherlands government in the Hague, in September 1994. The objective of the meeting was to foster a first informal exchange of views among trade policy officials. The author, Professor of Labour Economics at Cornell University, School of Industrial and Labor Relations, has written extensively on the subject of trade and labour standards. In a larger context, the OECD presented a report of possible links between trade and labour standards to the meeting of OECD Council at Ministerial level in May 1995.

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February 1995

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Current responses to these problems are inadequate. Statistics and analytical tools are lacking, national approaches are highly differentiated, and analyses and concepts are rudimentary and overly sectoral. This publication considers various measures for gearing European transport infrastructure more effectively to requirements, including an improved perception of demand for international transport, harmonised forecasting models and planning procedures, definition of pan-European transport networks, infrastructural investments, improving network operations and, lastly, measures to influence demands for mobility.

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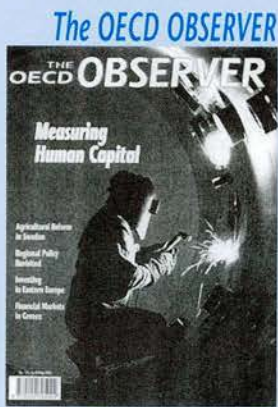
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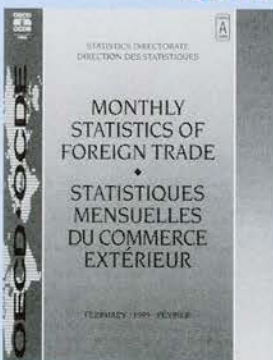
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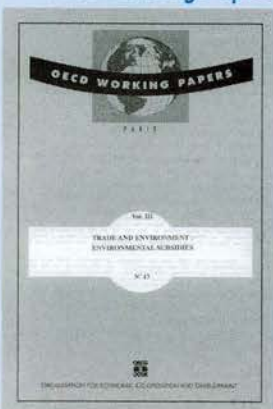
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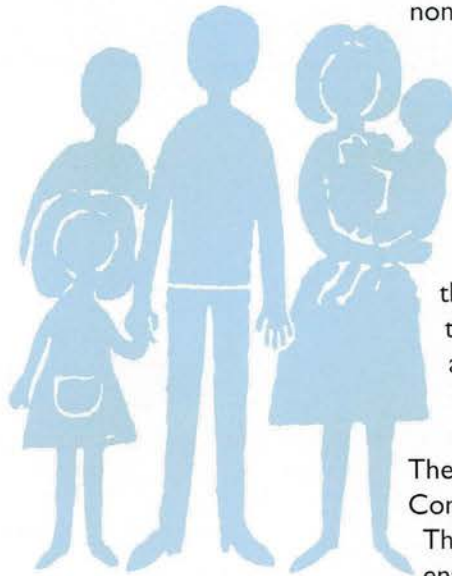
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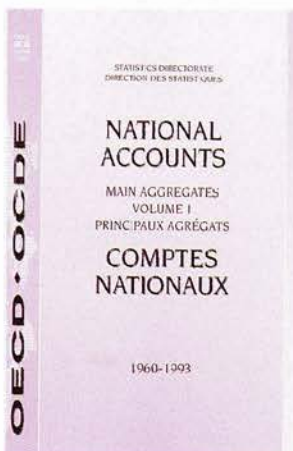
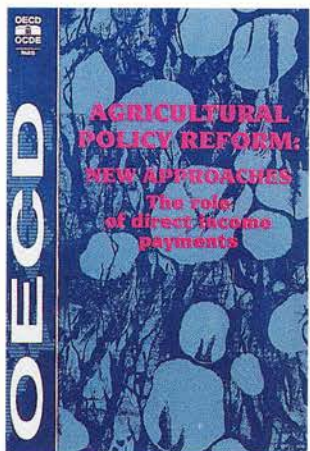
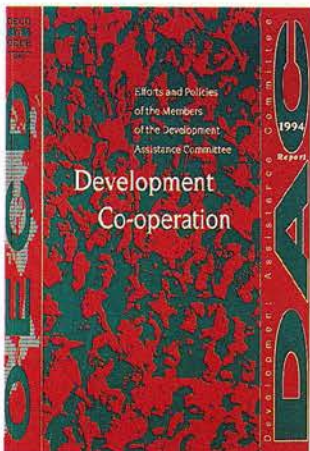
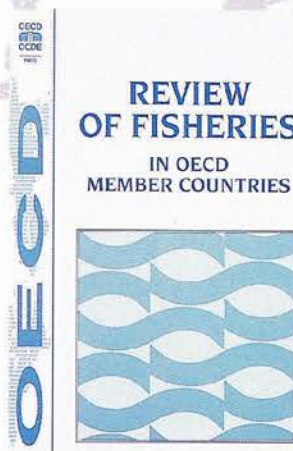
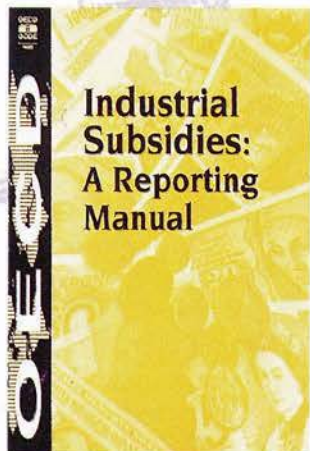
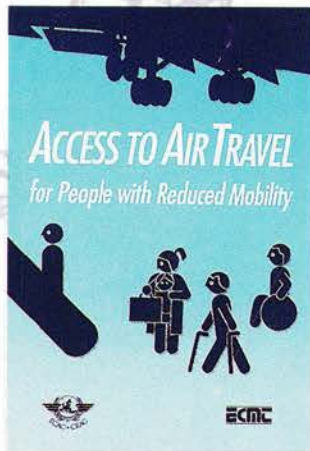
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