STRUCTURAL CHANGE AND EMPLOYMENT GROWTH: THE CHALLENGES AHEAD

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This article was written by Luc Soete of MERIT, University of Limburg, Maastricht, The Netherlands. It uses material collected within the framework of a report prepared with Christopher Freeman for IBM Europe (Freeman and Soete, 1993)
I. INTRODUCTION

While the last decade has undoubtedly been the period of the growth and emergence of modern information and communication technologies, it has also been a period of significant international structural change, particularly in terms of employment growth and displacement in the world economy. From a vision in the early to mid-1970s which held that, after the first oil shock, OECD economies would quickly return to full employment (see e.g. the so-called "McCracken" OECD Report, 1975), there is now a broad consensus amongst policy-makers that various facets of "structural change" have had and are still having a major impact on the structure of unemployment (long-term, youth, excluded workers, etc.) and on different countries' capacities to generate new employment opportunities.

That economists and policy-makers are waking up to the importance of structural change, even in a recessionary period with substantial growth in cyclical unemployment, is not really surprising. The last five to ten years can probably best be described as a period of historically major political and structural change: the end of the cold war and the collapse of the former socialist countries; the shift in world market growth from the North Atlantic OECD area (United States, EC, EFTA) to the Pacific basin area with new countries such as Mexico and South Korea now joining the club of OECD developed countries, and possibly others in a position to do so in a near future; the creation of regional trading blocks with as a result much more rapid growth within than between such integrating trade areas; the surge in foreign direct investment in these trade blocks with large firms aiming at presence in each of these markets; the growing impression of a dramatic reduction in physical distances – the world as a village – be it in terms of communications (with as typical examples financial services, or world information) or the decline in the relative cost of migration.

These processes of structural change have made policy-makers, economists and businessmen much more aware of the increased international implications of their policy actions. Policies which might appear "sustainable" within a national context, might increasingly not be so in an international or regional trade block context. This opening up to international restructuring processes has probably only just started, but it brings to the forefront how freedom of policy actions in a wide variety of different fields has been reduced in many developed countries. This holds not only for monetary policy but also for social policy, environmental policy, security policy, and even traditionally national policies such as open attitudes to refugees, drugs or even ethical considerations such as euthanasia.

Combined with the more traditional processes of structural change associated directly with technical change as described by Petit in his contribution to this
issue — changes in the industrial and service composition of employment, changes in demand for new commodities and services — these new features of international structural change question increasingly the automaticities of “employment compensation” and the employment creation capacities of high-wage and high-labour cost economies. While the international structural change features described above are taken as a starting point, they will not be further elaborated upon here, but rather some of the trends in employment, both at the aggregate and disaggregate level, and in international trade and competitiveness, both at the aggregate level and with respect to information and communication technologies (ICT), will be described. To take these features into account, such trends need, however, to be looked at in a broader world economy framework. However, the focus of the analysis, in the next four sections, will be on the situation in Europe and the OECD countries. Then in Section VI some of the major new policy challenges will be examined.

II. TRENDS IN EMPLOYMENT

Starting from the trends in employment, Figure 1 illustrates how employment creation capacities have varied between different OECD countries (the United States, Japan, the EC and EFTA countries) and the South and East Asian countries (SEA consisting of Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan, Thailand) over the last twenty years. The figures for 1993 and 1994 are estimates.

The United States as technological leader and most developed country has witnessed a remarkable employment growth pattern over the last twenty years. Over the last ten years some 18 million jobs have been created in the United States. Since 1960 total employment nearly doubled. Much has been written about the US pattern of employment growth. What appears from Figure 1 is that the popular notion in the United States of “jobless growth” is, if anything, only a recent, not very pronounced, phenomenon. The Japanese economy has also been characterised by substantial employment growth over the 1980s. This is to some extent even more remarkable given the continuous rapid growth in productivity in Japan. Despite average productivity growth rates in Japan of some 3.4 per cent a year, employment grew at some 1.2 per cent a year.

By contrast, the EC countries, and since the 1990s the EFTA countries, have been witnessing “jobless growth” for a very long time. There has barely been any growth in employment over the last 20 years. Surprisingly, however, the EC countries’ most rapid employment growth occurred in the most recent period
1985-90. Employment grew at the historically unprecedented rate of 1.3 per cent a year, creating some nine million jobs. However, the shedding of employment since then has been so large that all the gains in employment over the exceptional period 1985-90 have been lost. As Figure 1 points out, compared to other OECD countries, European countries, both EC and EFTA, have been characterised by low employment growth over the last two decades which turned negative in 1991.

In contrast to these trends in employment growth, the South and East Asian countries have been characterised by extremely rapid employment growth, on average some 2.5 per cent a year. Whereas the United States nearly doubled its employment in thirty years, the Asian economies did so in twenty years. This rapid growth in employment has gone hand in hand with rapid output and productivity growth. This overall pattern of growth in output, productivity and employment, illustrated in Figure 2, can be best described as a new process of “catching-up” to productivity levels and consumer demand of the OECD developed countries. The catching-up process still has a long way to go, but the self-reinforcing dynamics of the process combined with the high concentration of world population in this area of the world, have made East and South Asia the new growth pole of the world.
Figure 2. Production, employment and productivity growth (1972-92)
Productivity growth = output growth per manhour

Average annual growth (%)  Average annual growth (%)

Production

Average annual growth (%)  Average annual growth (%)

Employment

Average annual growth (%)  Average annual growth (%)

Productivity

Source: ILO, Yearbook of Labour Statistics; OECD, CRONOS database.
As also illustrated in Figure 2, Japan has traditionally been the developed OECD country which compared most favourably with this successful “catching-up” growth pattern. Over the 1970s and 1980s Japan witnessed an impressive output growth (on average 4.5 per cent), higher than the substantial productivity growth of 3.4 per cent a year, with as a result a small, but steady employment growth just above 1 per cent a year. Whether Japan will be able to maintain such high, “full employment” output growth in the 1990s given the increased competition from other low cost based East Asian economies, or whether its unemployment rate will start to approach European levels, will depend on its capacity to keep ahead of other East Asian economies, benefit from the new growth opportunities in Asia, and successfully adjust its industrial structure towards a more service oriented structure.

By contrast, the United States with absolute levels of productivity still higher in most industrial and in all service sectors than in Japan and Europe (the exception with respect to Japan being steel, motor vehicles and parts, see e.g. the recent McKinsey study), has not surprisingly witnessed a lower growth in productivity than Japan or Europe, so that most of its output growth has been accompanied by employment growth. This high “employment intensity” of US output growth has been accompanied by the creation of many low-skill jobs in service sectors.

Finally the EC and also the EFTA countries, have been witnessing relatively low output growth with a relatively high productivity growth so that employment growth has been very low. Nevertheless for the period 1982-92 the EC and particularly EFTA countries had, with the United States, the lowest labour productivity growth.

The variety of trends in employment, output or productivity growth, as summarised in Figure 2, in other words hide some crucial structural change features, which appear to have had a much stronger impact in some countries than in others. To draw policy conclusions from aggregate trends is thus difficult because no insight is given about the underlying structural causes for productivity growth. The latter might indeed be the result of changes between sectors, and in particular between manufacturing and services; or even changes between occupations and skills; changes in competitiveness and in growth opportunities. Where employment is being created: in old, mature industries or new, high-tech services, some of which might be internationally traded whereas others might not (yet) be; what sort of employment is being created: low-wage, unskilled jobs or high-wage multi-skilled jobs; and where in the world such employment is created, matter a great deal in any debate on future employment growth.

This explains why even in countries with high employment growth such as the United States, and economies with low unemployment such as Japan, there is as much public debate on structural change and employment as in regions with
very high unemployment such as Europe. It also explains why simplistic macro-economic visions about creating more employment through slowing down productivity growth – increasing e.g. the so-called “employment intensity” of growth – will not lead the policy debate on employment growth very far. To do so requires a much more in-depth look at the major structural changes occurring in the economy, most of which will be associated with technical change. This is something to which we turn in the next sub-sections: sectoral changes; occupational changes; and international changes in competitiveness and growth.

III. SECTORAL SHIFTS IN EMPLOYMENT

In Figure 3 the distribution of employment in the primary, secondary and tertiary sectors for the OECD countries and the same East and South Asian industrialising countries as in Figure 1 are represented. The data for the OECD countries illustrates the well-known general shift away from agriculture and industry into services. The service sector now accounts for between 60 and 70 per cent

Figure 3. Sectoral employment shares
1990

Source: ILO, Yearbook of Labour Statistics.
of total employment in most OECD countries. Accompanying this steady increase in service employment share, both the United States and Europe have witnessed a steady decline in their manufacturing employment share. The most recent US figure (June 1993) indicates that no more than 18 per cent of the total US labour force is now employed in manufacturing.

But the contrast between the OECD and the East and South Asian economies relates in the first instance to the size of the agriculture sector. Whereas all countries saw their share of employment in agriculture decline, the difference between the absolute levels remains striking, with, however, substantial variation between both the OECD and Asian economies. Turkey, Greece, and to a lesser extent Portugal, resemble much more the developing economy pattern than Hong Kong, Singapore, Taiwan or South Korea. In industry the picture is less strikingly different between the OECD and Asian economies. All OECD countries, with the exception of Turkey, have seen their employment in industry decline. However, and in line with the evidence for Hong Kong and Singapore, the decline in manufacturing employment has been smallest in Japan and the Southern “industrialising” European countries: Portugal, Spain and Greece. By contrast South Korea, Malaysia and the Philippines still saw their industrial employment share rise.

With respect to services it is obvious that this sector is now by far the dominant employment provider in most developed countries. However, as Figure 4 illustrates, the growth in the employment share of services is in no way confined to the OECD area. As a matter of fact, the growth in the service employment share has been most rapid in the EC, EFTA and South and East Asian economies, illustrating again that the catching-up process in these countries includes a structural shift towards service activities.

These broad structural shifts are to some extent typical of economic development. They illustrate nevertheless the significance of the structural “transitions” occurring during any process of growth. Behind growth one observes, in other words, continuous shifts in employment growth between sectors, caused by the complex interplay between technology and demand. Technology will indeed lead to efficiency improvements in production, e.g. in agriculture and industry, resulting in declines in employment, if growth in output does not compensate sufficiently for such productivity gains (something which will depend on price and income elasticities – the most well known cases where such compensating effects will be insufficient relate to food and basic commodities, known as Engel’s law) and to the emergence of new products and/or services.

Similar changes, induced by changes in technology and demand, are of course occurring at a more disaggregated level, between industrial sectors. At the level of the United States, Japan and the EC, Figure 5 illustrates the changes in industrial employment in the 1980s. Both in the case of the EC and Japan, sectors
Figure 4. Change in employment shares

Source: ILO, Yearbook of Labour Statistics.
Figure 5a. Average annual employment growth 1980-90 in the United States

Source: OECD STAN database.

Figure 5b. Average annual employment growth 1980-90 in Japan

Source: OECD STAN database.
Figure 5c. Average annual employment growth 1980-89 in the EC

Source: OECD STAN database.

with the highest employment growth are typically high-technology sectors, particularly in ICT.

On the basis of some recent OECD work by Sakurai (Sakurai, 1993) attempting to "decompose" changes in employment, Figure 6 illustrates for the United States, Japan and the EC the "decomposition" in employment growth between output growth [sub-divided into domestic (final) demand and exports minus imports], and changes in technology (changes in input-output coefficients and labour productivity). While many questions can be raised about the assumed independence of each of those "decomposed" factors, the figure illustrates quite neatly how the employment growth in the high-wage or high-tech industrial sectors observed already in Figure 5 in the United States, Japan and to a lesser extent Europe is primarily the result of rapid output growth (both of domestic and foreign origin) which more than compensates for the very rapid growth in labour productivity in this sector. By contrast, the employment growth in financial and personal service sectors has gone hand in hand with only minuscule gains in labour productivity. Employment growth in these sectors has primarily been the result of rapid domestic output growth. Whether such employment growth is "sustainable" or is simply the result of the failure of those sectors to use efficiently new ICT technology remains of course to be seen. Studies of the financial sector
Figure 6a. Growth in employment and its composition in the United States

Manufacturing – Services

Due to:
- Domestic final demand
- Exports – imports
- Change input-output coefficient
- Change labour/output ratio

Average employment growth:

<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment Growth</th>
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<tbody>
<tr>
<td>High technology</td>
<td>2.59</td>
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<tr>
<td>Medium technology</td>
<td>-0.72</td>
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<tr>
<td>Low technology</td>
<td>-1.15</td>
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<tr>
<td>Finance, insurance</td>
<td>5.48</td>
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<tr>
<td>Trade, restaurants, hotels</td>
<td>2.62</td>
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<tr>
<td>Electricity, gas and water</td>
<td>2.51</td>
</tr>
<tr>
<td>Construction</td>
<td>2.28</td>
</tr>
<tr>
<td>Social and personal services</td>
<td>1.91</td>
</tr>
<tr>
<td>Transport and communications</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Source: OECD (1992), Structural Change and Industrial Performance, OECD Document Series.
Figure 6b. Growth in employment and its composition in Japan

Manufacturing – Services

Due to: ☑️ Domestic final demand ☑️ Exports – imports ☑️ Change input-output coefficient ☑️ Change labour/output ratio

Average employment growth:

<table>
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<th></th>
<th></th>
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<tr>
<td>High technology</td>
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<td>3.05</td>
<td>2.7</td>
<td>1.76</td>
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<tr>
<td>Medium technology</td>
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<td>0.29</td>
<td>3.05</td>
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<tr>
<td>Low technology</td>
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<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>Social and personal services</td>
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<td>0.06</td>
<td>0.06</td>
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<td>0.06</td>
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<tr>
<td>Finance, insurance</td>
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<td>3.69</td>
<td>3.69</td>
<td>3.69</td>
<td>3.69</td>
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<tr>
<td>Trade, restaurants, hotels</td>
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<td>1.09</td>
<td>1.09</td>
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<tr>
<td>Electricity, gas and water</td>
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<tr>
<td>Construction</td>
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<td>-0.08</td>
<td>-0.08</td>
<td>-0.08</td>
<td>-0.08</td>
</tr>
</tbody>
</table>

Source: OECD (1992), Structural Change and Industrial Performance, OECD Document Series.
Figure 6c: Growth in employment and its composition in the EC

Manufacturing – Services

Due to:
- Domestic final demand
- Exports – imports
- Change input-output coefficient
- Change labour/output ratio

<table>
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<tr>
<th>High technology</th>
<th>Medium technology</th>
<th>Low technology</th>
<th>Finance and insurance</th>
<th>Social and personal services</th>
<th>Trade, restaurants, hotels</th>
<th>Transport and communication</th>
<th>Public utilities, gas and water</th>
<th>Construction</th>
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<td>-2.227</td>
<td>-3.453</td>
<td>-3.453</td>
<td>1.118</td>
<td>0.572</td>
<td>0.465</td>
<td>0.412</td>
<td>-2.227</td>
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</tr>
</tbody>
</table>

Source: OECD (1992), Structural Change and Industrial Performance, OECD Document Series.
forecast that efficiency improvements and the increased tradeability of such services will reduce EC employment in financial services by more than 10 per cent.

The variety of sources of employment growth in different sectors of the OECD countries considered in Figure 6, suggests that one has to be very careful in drawing general policy conclusions in the area of employment creation. Clearly, new demand and output growth associated with high-tech industries can be a major provider of employment growth. However, and as illustrated in the case of France, the United Kingdom or the Netherlands, the growth in productivity in order to stay competitive might be so high that there is actually a decline in employment in these high-tech sectors. Similarly in services, old, traditional and above all “non-tradeable” demand for personal care services, will generate many employment opportunities, given the low, sometimes negative, labour productivity growth in such sectors. At the same time though, new, increasingly tradeable demand for finance and other business services, where the productivity growth pattern has varied between the United States, Japan and the EC, might cause major employment reductions in those sectors.

While the data reported in Figures 5 and 6 describe some of the structural changes in employment creation in the 1970s and 1980s, very little evidence exists for the most recent period. However, there is little doubt that the intensity of structural change has accelerated in the present recession, and that the variety in employment growth and decline patterns between countries and sectors has, if anything, increased.

IV. OCCUPATIONAL CHANGES IN (UN)EMPLOYMENT GROWTH

The growth and decline of employment opportunities is not limited to the growth and decline of sectors. A particular feature of the rise in structural unemployment over the last two decades is the growing educational and occupational “mismatch” resulting from the combination of job losses and new employment opportunities. As Sherman and Jenkins (1979) put it: “how to tell a redundant Scottish steel worker that there is a job opportunity as a secretary in London?” The labour market is from this perspective an extremely heterogeneous “market” which does not adjust to incentives in the same immediate way as financial markets would. Many of the structural changes associated with changes in the demand for new skills and qualifications are directly the result of technological change.

The broad description of the structure in occupations and educational levels is limited to the EC. Figures 7 and 8 illustrate the distribution of employment
Figure 7a. Educational employment shares
European Community, 1991

Figure 7b. Occupational employment shares
European Community

Source: MERIT, MASTER database.
Figure 8a. **Educational unemployment shares**  
European Community, 1991

Figure 8b. **Occupational unemployment shares**  
European Community

Source: MERIT, MASTER database.
(Figure 7) and unemployment (Figure 8) in the EC for thirteen broad occupational and twelve educational classes. Figure 7a illustrates the importance of low and medium technical qualifications for employment. Workers and employees with such qualifications represent nearly 40 per cent of total employment in the EC. At the same time though, as Figure 8a illustrates, unemployment is highest amongst those workers. Workers with these qualifications represent 45 per cent of total unemployment. High technical, administrative, medical levels and general qualified people by contrast, while representing some 20 per cent of total employment, only represent some 12 per cent of total unemployment. A similar but somewhat more varied picture emerges from Figures 7b and 8b. The extremely high share in total unemployment of workers with low technical skills (more than 35 per cent of total unemployment in Figure 8b) is much higher than the share in total employment of such low-technical jobs. Medium administrative jobs by contrast represent more than 25 per cent of total employment (Figure 7b) and their share in total unemployment is, not surprisingly, also high. The high-technical jobs appear again much more present in the employment share bars in Figure 7b than in the unemployment share bars in Figure 8a.

In Figures 9 and 10 the interaction between educational qualifications and occupational job distribution is illustrated for two extreme, but typical cases: administrative qualifications and jobs (Figures 9a and b) and technical qualifications and jobs (Figures 10a and b) each time at the low, medium and high level.

In Figure 9a one can observe the distribution of workers/employees with an administrative educational background over different occupations. Thus 65 per cent of those holding medium administrative degrees have an employment in medium administrative jobs. For those with high administrative qualifications, 45 per cent found employment in medium administrative and 32 per cent in high administrative jobs. Figure 9b by contrast depicts the educational background of workers with an administrative job. Here only 45 per cent of those employed in medium administrative jobs appear to have such a qualification. In the case of high administrative jobs this is even lower, only 31 per cent of those holding high administrative jobs had a corresponding educational background. Nearly 10 per cent of those holding such jobs had high technical, medical or general educational qualifications. Figures 9a and 9b illustrate in other words, that the educational background of workers or employees with an administrative job is not that important, whereas workers with an administrative training normally get an administrative job.

The opposite can be found for workers with technical qualifications. Figure 10a depicts the distribution of those holding technical degrees over various job categories. Contrary to Figure 9a, less than half (48 per cent) of those with low-technical degrees are also employed in low-technical jobs. Similarly, of all those with medium-technical degrees, only 17 per cent are employed in medium-
Figure 9a. Occupational distribution in the EC
Of those holding administrative degrees

Figure 9b. Educational distribution in the EC
Of those holding administrative jobs

Source: MERIT, MASTER database.
Figure 10a. **Occupational distribution in the EC**
Of those holding technical degrees

![Graph showing occupational distribution in the EC](image)

Figure 10b. **Educational distribution in the EC**
Of those holding technical jobs

![Graph showing educational distribution in the EC](image)

Source: MERIT, MASTER database.
tech jobs, and more than 44 per cent in low-tech jobs. More generally stated, it appears that the distribution of those with technical qualifications is more dispersed over job categories than in the case of administratively qualified workers or employees. Similarly, Figure 10b illustrates the educational background of workers with a technical job. In contrast to Figure 9b, those holding high-technical jobs need high-technical qualifications. Nearly two-thirds (63 per cent) of those holding such positions have such qualifications. In other words, technically-qualified workers can occupy different types of jobs, whereas the pure technical jobs have to be occupied by technically-qualified workers.

In so far as the category "high-technical" includes such relevant ICT educational or occupational categories as software engineers or computer analysts, a more disaggregated analysis focusing on relevant ICT qualifications and occupations would undoubtedly resemble the distribution chart illustrated in Figure 10. There are in other words some key skills, which have an importance way beyond their particular occupational fit.

V. INTERNATIONAL TRADE AND COMPETITIVENESS

As highlighted already in Figures 5 and 6, an important source of employment creation and also employment displacement is directly associated with foreign trade and international competitiveness. Based on the OECD methodology used above, Figure 11 illustrates the employment impact of trade for three categories of manufactured commodities: high-, medium- and low-wage goods, for the United States (Figure 11a), Japan (Figure 11b) and the EC (Figure 11c). The figure illustrates the crucial importance of foreign trade to employment growth in Japan. More than 5.6 million jobs in manufacturing have been created in Japan over the period 1970-85 directly as a result of foreign trade. That is about three-quarters of the total gains in employment in Japan over this period (Sakurai, 1993). The "full employment" output growth pattern Japan has enjoyed over the 1970s and 1980s has in other words been primarily based on foreign output growth and foreign market penetration. The employment gains have been realised both with respect to high-, medium- and even low-wage sectors, and with respect to trade with the OECD, the so-called Dynamic Asian Economies (DAEs: Hong Kong, Singapore, South Korea and Taiwan) and China, and the Rest Of the World (ROW). While trade with the OECD area has remained over the period considered in Figure 11b (1970-85) the most important employment growth contributing factor in Japan, it is likely that over the more recent period trade with the
Figure 11. Trade impacts on employment

A. United States (1972-85)

B. Japan (1970-85)

C. European Community (1970-85)

DAE = Dynamic Asian Economies: Hong Kong, Singapore, South Korea and Taiwan.
ROW = Rest of the World.
Source: Sekurai, 1983.
DAEs and the other SEA countries has become as important, if not more important for employment growth in Japan.

The United States by contrast, and as illustrated in Figure 11a, has barely relied on foreign markets for its output and employment growth. Only in the area of high-wage commodities and non-manufacturing trade has employment growth been realised on the basis of foreign trade. Overall the United States lost about half a million jobs as a result of trade. These employment losses were in the first instance the result of trade with the DAEs and China, particularly in low-wage commodities. Trade with the rest of the OECD particularly in high-wage commodities still generated substantial employment growth.

Finally in the case of the EC (Figure 11c), while the overall employment gains and losses of trade appear to cancel each other more or less, nearly all the employment gains in manufacturing appear to be the result of trade in high-wage commodities with the rest of the OECD. The other gains appear related to non-manufacturing trade.

Given the importance of trade in high-wage/high-tech sectors for employment growth and the particular contribution therein of ICT commodities, we now turn to some more detailed data on the trade performance of the United States, Japan and the EC in ICT commodities.

In Figures 12a, b and c, the trend in the absolute trade balance of the United States, Japan and the EC in ICT commodities over the 1980s is represented. The figures illustrate the dramatic trade surplus of Japan in ICT goods, which seems only to have come to stabilisation in 1987 at a staggering trade surplus level of about $67 billion. They also illustrate the rapidly declining trade balance of the EC. Its trade deficit of $32 billion is now more than twice the deficit of the United States in ICT goods.

Another less absolute and more comparative way to look at the trade performance of the ICT sectors is provided by indicators of international competitiveness such as the "Revealed Comparative Advantage (RCA)" index which normalises the export performance of the ICT sector, relative to the trade performance of all manufactured goods. Indices above zero indicate comparative advantage in the particular sector, indices below zero, comparative disadvantage.

Figure 13 presents such normalised "revealed comparative advantage" (RCA) indices for the United States, Japan and the various EC countries for the office equipment and computers sector (Figure 13a) and for the communication equipment sector (Figure 13b) over the last 20 years (3-year averages for the periods 1970-73 and 1988-90).

Figure 13a illustrates in the first instance the emergence of a significant comparative advantage in Japan in office equipment and computers over the last 20 years. In the case of the United States it points to a weakening but continuing
Figure 12. Imports and exports of information technology (IT) sectors

A. United States

B. Japan

C. European Community

Source: OECD.
Figure 13a. Revealed Comparative Advantage index
Office machines and computers

Source: MERIT.

Figure 13b. Revealed Comparative Advantage index
Communications equipment

Source: MERIT.
comparative advantage in office equipment and computers. With respect to the EC, and possibly most strikingly, Figure 13a illustrates how Europe has further fallen behind and does not have a comparative advantage in office equipment and computers.

Finally, with respect to the individual EC countries, apart from the extraordinary but special case of Ireland with a dramatic, but primarily "foreign assembly" comparative advantage in office equipment and computers, Figure 13a illustrates how each of the large European countries, with the exception of the United Kingdom, has lost its comparative advantage in this ICT sector. This is particularly the case for those EC countries with large domestic producers in office equipment and computers: Germany, France and Italy. Only in the case of the United Kingdom and apparently since Fujitsu bought ICL has there been a strengthening of the UK's international competitiveness in this sector.

In communication equipment (Figure 13b), the Japanese comparative advantage is dramatic. Only the United States and Ireland have, today, indices just above zero. Germany, the Netherlands and Italy, again all countries with large domestic firms in this ICT area have seen their relative competitiveness decline significantly over the last 20 years.

In other words and as illustrated by both Figures 13a and 13b, the only areas where Europe seems to have increased and built up a comparative advantage in ICT have been dominated by the activities of foreign, non-European firms. The large European countries with strong domestic firms appear all to have lost much of their competitive strength over the last 20 years in the two broad ICT sectors considered above.

The employment implications of this pattern are, as highlighted amongst others in Papaconstantinou's contribution to this issue, not easy to measure. The presence of many foreign firms in the ICT area in Europe has certainly generated much new employment in the ICT area which would otherwise not have been generated (see amongst other the evidence presented in Figure 6c). At the same time those firms have been much more active in reaping fairly early the advantages of European integration. Compared with the United States, Japan or South-East Asia, growth in Europe in ICT has lagged behind and Europe's world market share has steadily declined.

The shift in comparative advantage away from high-tech commodities, towards more traditional commodities has, in our view, had a major negative impact on European growth and employment. The results are: a much slower pattern of diffusion of ICT equipment to the rest of the economy, a much lower birth rate of new product or service activities in the ICT area, much higher prices for ICT commodities and a far less dynamic and competitive ICT industry.
VI. STRUCTURAL CHANGE AND EMPLOYMENT: THE POLICY CHALLENGE

We turn now, albeit briefly, to some of the major policy challenges. For simplicity these have been grouped under the headings: the rising trend in long-term unemployment resulting from structural change and labour market rigidities (Sub-section VI.1); and the increased international competition and fear of delocalisation (Sub-section VI.2).

VI.1. Rising long-term unemployment and labour market rigidities

The growing policy concern about structural unemployment, and in particular that related to long-term and youth unemployment, is not only inspired by the economic waste of these large unused human resources or the rising financial burden on government budgets of unemployment payments and other social security benefits. The policy concerns in Europe relate today probably as much to the fear of social destabilisation and insecurity which such levels of more or less permanent "unemployment" might bring about in society at large. Typically, the official downward revisions in unemployment numbers to correct for early retirement – excluding unemployed above 50 –, workers on job creation schemes or on other training schemes, no longer appear to serve their purpose. Indicators of disguised unemployment appear today again of relevance, not just to trade unions, but to policy-makers as well. In many European countries the unemployment rate, including such disguised unemployment, is now nearly twice as high as the official one.

The hidden costs of such high real levels of unemployment are slowly coming to the surface: social tensions; growing dualism between those included and excluded from work and jobs; social selfishness alongside growing income inequality; growth in crime, drug dependence and alcoholism, most of which must be associated with the extraordinarily high unemployment rate amongst unskilled, urban youngsters and school dropouts; xenophobia and a rise in racial conflicts and tensions associated with immigrants and anything that is "foreign", etc. It is notable that the work of social psychologists and sociologists on such adverse effects led both economists and policy-makers to a more intense concern with long-term unemployment. As the OECD's Employment Outlook (1993) points out, nearly half of the EC unemployed have been out of work for more than a year. Not surprisingly the policy emphasis has shifted towards more active labour market policies: policies aimed at counteracting the dangers of a "culture of dependence" developing over time as a result of long-term unemployment. To break such
"vicious circle" phenomena appears to require much more inter-connected active measures with increasingly an obligation to accept work or training combined with financial pressures and inducements, both for employers and for the unemployed.

At the same time many labour market economists also put the emphasis on the need to reduce relative wages (and social benefits) for less skilled workers and for young workers. In this, more traditional, vision much of the blame for the rise in unemployment, particularly in Europe, is put on labour market rigidities and on the lack of incentives to seek work. Labour market flexibility and in particular downward wage flexibility is then expected to enlarge the employment creation potential at the low-skill/low-wage end. The combination of existing income tax structures and minimum wage legislation is assumed to discourage the supply of low-paid work, and the amount of unemployment and social assistance benefits might have removed incentives for unemployed workers to seek actively for work.

The wage flexibility argument while attractive cannot, however, be discussed purely in static economic terms. As already argued above the issue is not just an economic one. For example, how should we deal with the fact that downward wage adjustment puts most of the burden of the adjustment on the economically-weakest groups in society? How can we avoid the employment generated by wage flexibility leading to "work in poverty"? Minimum wages and many other social achievements at the low end of the labour market have been created because they corresponded, often in an absolute sense, to minimum remuneration levels, where life in work meant life with an income which would allow somebody to survive, given relative costs of living. Over time, these minimum wage levels could well have exceeded such "survival" levels in some OECD countries, such as the Netherlands, but minimum wages, if calculated in "purchasing power parities", are generally not high enough to offer much room for downward adjustment in many European countries without generating work in poverty. The focus must be much more on the double gap between before- and after-tax minimum wage levels and the official and effective minimum wage levels. In many OECD countries that gap appears to be substantial.

Second, the question can be raised as to what extent such immediate wage adjustments would not have severe, long-term negative consequences for both labour productivity growth and competitiveness. Whereas from a static, short-term point of view such policies might well generate low-skill employment possibilities in the non-tradeable service sector – the so-called "hamburger economy" – and thus reduce some of the structural long-term, low-skill unemployment, there exists a real danger that these measures could also lead to downward pressure on labour productivity with spillovers to the tradeable sectors, such as sweatshops in clothing and textiles, and a move towards long-term specialisation in low-skill activities. As suggested above in Section V, it is precisely the low-wage sector
which has, because of increased import penetration, suffered most employment losses.

The wage flexibility argument appears, from this perspective, rather similar to the argument for full protectionism. If there were full protectionism, for instance, at the broad level of the EC trade block (or even better the new European economic space), low-skill employment is likely to be generated in many of the labour-intensive, low-wage sectors which would now substitute for previous imports of such commodities. The new employment created would be substantially bigger than the employment decline in the EC's world export sectors and full employment would probably be quickly reinstalled. Apart from the obvious welfare losses from EC autarchy, the loss of the dynamic competitive impact of foreign imports would, however, in the long term, severely undermine the EC's growth and competitiveness.

In an open world, downward wage adjustment appears to be a similar type of escape from adjustment as protectionism. Introducing it as the main policy device could, from this perspective, lead to the "import of underdevelopment"; a process of a more lateral international division of labour, where wage differentials within the developed countries increasingly resemble wage differentials between countries. There is in other words a danger of being caught up in a low-wage trap on a long-term basis. To avoid this danger of a permanent large low-wage, low-skill underclass it is essential to press forward with policies for training and high quality services, so that high-skill jobs become a steadily higher proportion of the total.

VI.2. International competitiveness and delocalisation

This last trend points to some of the new features emerging in the technology employment policy debate: the growing role played by increased international competition and international location of manufacturing and, increasingly, service activities. The policy argument is here one of "fear of delocalisation" and is directly influenced by the rapidly growing possibilities for such delocalisation because of ICT.

An important factor in the discussion about the scope for downward wage flexibility is the size of the non-tradeable sector, given its particular role in absorbing low-skilled, low-wage employment. It has often been claimed that the non-tradeable service sector in Japan acted as an employment "reservoir" in times of slack demand, both within large firms, organised along lifelong employment, and in the economy at large with many relatively low-skilled service activities. The steady low levels of unemployment in Japan are thus also explained by the cushioning effect of the non-tradeable sector. There are, however, good argu-
ments that the non-tradeable service sector has been shrinking significantly over
the last ten years in all OECD countries, and in the EC in particular.

First and foremost, it is obvious that ICT has significantly increased the
tradeability and geographical mobility of many service activities. The present
trend in many service sectors towards the relocation of service activities, such as
programming, simple clerical functions, and reservations and bookings, illustrates
the fact that information and communication technology has brought about a rapid
and cheap flow of information across the world, creating to some extent the global
service village. Labour cost differences in such service activities are the major
cost variable. Firms, even those which had little international experience, are
“(re)discovering” the basic principles of the international division of labour.

But there might well be a far more fundamental trend underlying such interna-
tional relocation shifts in services. Many Western firms are also discovering the
relatively high levels of human capital in many Asian countries. The latter, after
years of heavy investment in education, particularly in the science, technical and
engineering fields, are starting to reap some of the benefits of these investments
and attract some of the complementary physical capital. Whether this is a reflec-
tion of a more lateral division of labour or whether this is the result of a much more
straightforward process of catching-up, is an open question. What is certain
though, is that an increasing number of jobs in OECD countries, even in high-
skilled activities, that were previously protected because they were essentially
non-tradeable, are becoming subject to international competition. It is this new
pressure across the occupational spectrum which probably gives rise to some of
the most outspoken fears of low-wage competition and rapid growth in structural
unemployment in the OECD economies.

Figure 14 illustrates this growing concern using a relative unit labour cost
indicator which we have called delocalisation pressure. It is based on the gap in
labour costs between the low-wage and high-wage country, corrected for the gap
in labour productivity between the two countries. The indicator illustrates how over
the last ten years the delocalisation pressure has increased dramatically between
Europe (and in particular Germany) and the South and East Asian economies.
For the United States and Japan the rise in delocalisation pressure has been less
pronounced.

Not surprisingly, there is growing concern that the international flexibility
initiated by multinational corporations “delocalising” production activity towards
regions/countries with lower labour costs, will lead to severe employment losses.
This concern is not just expressed with respect to delocalisation to South and
East Asia, as illustrated in Figure 14, but is also expressed more and more within
Europe, because of the geographical proximity of new, low-labour-cost regions in
the ex-socialist East European countries, and because of the lack of a “social
charter" in the Maastricht Treaty of European Union which might prevent convergence in the social sphere, at least in the short run.

Such trends towards delocalisation are to some extent within the logic of international competition and the free movement of international capital flows. While national governments might be unable to do much about such delocalisation trends, local government authorities have, in our view, a much more active role to play in "keeping" such firms within their region. Indeed, local government authorities have a prime responsibility in creating economic conditions to ensure that subsidiaries of foreign firms become embedded in the domestic economy, so that the region in which they are located becomes essential to the subsidiary's competitiveness. From this perspective, local authorities might well have to focus less on attracting foreign firms with subsidies, and switch their attention more to creating favourable infrastructural conditions that will strongly link foreign subsidiaries to the local region. These infrastructural conditions include education and training, networking with small and medium-sized local sub-contracting firms, and collaboration with local universities and technical institutes or other research organisations.
VII. CONCLUSIONS

Probably to the frustration of many policy-makers, the problems of structural unemployment remain complex and are unlikely to be solved by immediate policy reactions. What is clear though is that the subject represents a major challenge to the OECD as an international economic advisory “think thank” organisation. If the OECD is not capable of coming up with long-term, lasting solutions to the steady growth in (structural) unemployment, countries will start to act by themselves, ignoring each others experience and commencing a difficult process of institutional and policy learning. This process is already occurring in many OECD countries, with the Scandinavian countries taking the lead.

The breakdown of the Scandinavian “social system” (in particular Sweden and Finland) is indeed one of the most dramatic, new features of present day high unemployment in the OECD area. It is obviously linked to some specific geographical factors, such as the periphery position vis-à-vis the EC or the proximity to the ex-Soviet Union and eastern European ex-socialist countries. But it is also related to a rag-bag of very different structural factors: the unsuccessful attempts at monetary convergence with Germany and EMU, the possible overstretching of the social system, the structural adjustments and changes in specialisation pattern towards less-technology-intensive commodities, the globalisation of large domestic firms, etc. These countries, while having been confronted with such structural problems much earlier and much more profoundly than most other OECD countries, might well show the way on how institutional change can be introduced in a democratic fashion and without paying too high a price. Not surprisingly, the conference on which this issue reports was organised on the initiative of the Finnish Government. The present Finnish, Swedish and Danish experiments might bear particular relevance to many other OECD countries both in Europe and outside Europe. And while the OECD report on employment/unemployment might well come too late to be of much practical assistance for these countries in their confrontation with structural unemployment, it will nevertheless be of influence in assessing the likelihood of success of the policies currently being implemented.

More disturbing though are individual “beggar-thy-neighbour” countries’ responses to unemployment. Such policy responses are not confined to traditional protectionist policy proposals. They also include various other attempts at reducing domestic labour costs relative to major competitors, e.g. through devaluations, reductions in, or even abolition of, minimum social legislation, including minimum wages, child labour legislation, environmental rules and regulation, etc. “Flexibility” in this social deregulation sense has a far more negative connotation. The role of the OECD in setting out rather early on what the rules of the game
should be in this area of "flexibility", is of the utmost importance. No doubt there is scope for employment creation and increases in labour force participation in many European OECD countries by eliminating some of the labour market rigidities. However, the point should not be overstretched; labour markets, contrary to financial markets, will never adjust to prices in a fraction of a second. The OECD should probably bring more clearly to the forefront the scope for "positive flexibility", to be defined just like "positive" adjustment, or "positive" economic integration in terms of common policies likely to strengthen both the adaptive and innovative strength of the OECD economies.

Finally, and with respect to the possibly much more competitive international environment, it is important to recognise that the OECD economies do not operate in a vacuum. The world economy, particularly in the Asian Pacific area and by and large outside of the OECD, has grown much more rapidly than the old North Atlantic OECD core base. The fact that most of the employment concerns are being voiced in Europe is, from this perspective, not surprising. It is, whether one likes it or not, part of a more general structural shift in the growth and employment pole from Europe-United States to United States-Asia. How Europe will respond to this shift is an open question, but one with many implications for Europe's employment future.
NOTES AND REFERENCES

1. We say developed countries because those degrees of freedom have of course always been far more restricted in developing countries. One has only to think of the IMF or World Bank conditions with respect to new loans.

2. It might even have been overstretched in this area. What is obvious though is that in the monetary area, given the large amounts of money which have become internationally mobile, the "independent" actions of central banks have become increasingly dependent on the financial markets' reactions.

3. It should be emphasised that the "decomposition" method used by Sakurai (1993) and illustrated in Figure 6 only allows for directly attributable employment gains/losses due to foreign trade. Indirect effects, e.g. through increased competition, are not taken into account.

4. Again this statement needs to be interpreted with care given the "partial" nature of the methodology used. The welfare gains, e.g. in terms of lower priced imported goods, are of course left out of the mechanical employment decomposition methodology used in Figure 6.

5. The RCA index has been normalised as (RCA - 1)/(RCA + 1).

6. We do not discuss here the various policy proposals directed at reductions in labour costs while leaving wages intact. Proposals aimed at shifting the tax burden away from labour towards other inputs such as materials or energy are undisputed. However, their unco-ordinated implementation in individual European countries appears difficult, because of fears of losing international competitiveness.
BIBLIOGRAPHY


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