In the 1976 Scottish Government Yearbook, Christopher Smallwood warned of the problems associated with sudden oil wealth. Discussing the economics of independence, he pointed out that income from the North Sea would dramatically improve the balance of payments of an independent Scotland. In the absence of an appropriate policy response, the exchange rate of a newly independent Scottish currency would in consequence be pushed so high as to wreck the competitiveness of traditional manufacturing industry.

Further difficulties would arise if demands for a share of the oil wealth spilled over through the wage-bargaining system into firms in the non-oil sector where productivity increases might be insufficient to accommodate such pressure. Inflation, a further deterioration in competitiveness, and widespread company collapse would follow.

An oil bonanza could therefore, according to Smallwood, co-exist with severe unemployment in the non-oil sector of the Scottish economy. Oil revenue accruing to Government would have to be used to meet the fiscal costs of the resulting structural unemployment, and to reconcile the political pressures for tax cuts and higher welfare benefits that would build up in the wake of independence.

The openness of the Scottish economy would mean that spending oil revenue in this way would do little to stimulate the non-oil economy. Much of the increase in consumption would leak out on imports, cheapened by the higher exchange rate, rather than be spent on Scottish products. Import penetration would further undermine domestic manufacturing and discourage private investment. The parallel failure to invest oil wealth directly in re-equipping Scottish industry would store up trouble for the future, as would the failure (on grounds of
political feasibility) to invest in overseas assets to guarantee continued income after the oil had run out.

Professor Donald MacKay, writing in the same Yearbook, hotly disputed the Smallwood scenario—arguing that while British governments had been known to adopt policies of such "criminal recklessness", an independent Scottish government would know better. He argued that sensible investment by the private sector, and—his favoured solution given Scotland's limited capacity to absorb all the oil revenue at once—export of capital abroad was a more likely outcome. This along with a lower oil depletion rate would serve to keep the exchange rate down(2).

Recent Experience

Eight years on, it is interesting to return to this debate. Many of the problems Smallwood predicted a fortiori for an independent Scotland appear to have developed in the absence of independence, perhaps confirming MacKay's forthright view of British government.

The trade-weighted exchange rate has risen in real terms by 36 per cent since 1976; import penetration in manufactured goods has jumped by over a quarter from 23 per cent in 1976 to 29 per cent in 1982; and the UK is this year moving towards a trade deficit in manufactured goods for the first time since the Industrial Revolution.

In Scotland, manufacturing output has dropped by 7.1 per cent over the same period, with much steeper declines in particular sectors. Manufacturing employment has fallen by almost a quarter since 1976, and Scottish unemployment now stands at around 350,000 with a further 65,000 on temporary employment and training schemes.

Fears that oil revenue would be squandered on consumption or on reducing Government borrowing have proved well-founded. Partly this was the fault of the 1974-79 Labour Government which failed after Cabinet discussion to establish a special fund earmarking oil revenue for regional industrial regeneration. Oil revenue of £8 billion a year at peak production now disappears into general revenue, and barely covers half the fiscal loss due to unemployment (currently estimated at £17 billion a year for the UK as a whole.)

With oil production forecast to decline from 1986 on, some argue that at best a great chance has been missed; at worst oil has played a significant part in damaging Scotland's industrial base. Others, conceding perhaps too readily the role of oil in the process of de-industrialisation, argue that this is really not a serious problem(3). What Scotland is experiencing, they say, is an inevitable transition from an outdated and declining industrial structure into the more competitive high technology and service sectors which it is said are the industries of the future. Oil, the argument goes, has helped speed this necessary structural transition and provided a useful cushion for change.

This article examines some of these claims. It tries to assess the direct and indirect effects of oil on the Scottish economy, citing a recent study by the National Institute for Economic and Social Research to show that the adverse exchange rate effect of oil may be weaker in the short term than expected(4). However, the National Institute conclusion, that overall Britain is "unambiguously better off because of oil", reflects the structural characteristics of their model of the economy and says little about the distribution of these benefits. Nevertheless, their results suggest that if the North Sea experience is to be criticised, it is as a tragic missed opportunity to regenerate Scottish industry rather than as being the main agent of de-industrialisation.

The major problems have come not from oil per se, but from the way the Government has decided to use oil revenue. In the pursuit of low inflation, Government has preferred to reduce its borrowing requirement, deflate the economy and allow the non-oil trading position to deteriorate, rather than using oil wealth and the stronger balance of payments position to expand employment and regenerate Scotland's manufacturing base.

It is argued here that the policy of allowing the rundown of traditional manufacturing industries in Scotland has arisen from a misunderstanding by government of the determinants of industrial competitiveness. De-industrialisation, a process neither inevitable nor desirable, has been caused largely by the lack of sustained
growth in demand at a macroeconomic level.

A reversal of that policy and a balanced industrial structure - with modernised manufacturing industry in traditional sectors retaining an important role - is advocated here in preference to an economy built largely around oil, services and high technology industries. These last-mentioned industries raise many issues of control and employment stability, and share some of the distributional problems presented by the oil industry.

Local Effects of Oil
(i) Impact of the Oil Industry

Oil has, of course, had a positive direct impact on employment and industrial output in Scotland. Though perhaps of more limited significance quantitatively and geographically than the macroeconomic effects, these direct effects are nonetheless important to the regional economy.

The fairly modest impact of oil on recorded Scottish output results from little more than the conventions of national income accounting. The actual value of North Sea oil production is allocated to a separate Continental Shelf sector of the national accounts since, from a national accounting point of view, offshore oil is regarded as a UK asset. The contribution to Scottish Gross Domestic Product (GDP) shown in the regional accounts is restricted therefore to local expenditures on wages, salaries and other local purchases made by oil-related companies. An estimate of the multiplier effects on Scottish output of North Sea activity, calculated using the 1973 Scottish Input-Output Tables, is also included.

On this basis, a Scottish Office output survey of oil-related industry in 1977 estimated that the value-added generated in Scotland by these firms was £518 million, or 4.8 per cent of Scottish GDP. This rose to £738.5 million once induced multiplier effects in other sectors were included. Of the total direct and indirect value-added (excluding induced effects), 24 per cent was generated in manufacturing industry (mainly engineering), 45 per cent in oil-related services, 18 per cent in platform and module construction and pipelining, and 11 per cent in wages and salaries of employees directly involved in oil and gas exploration and production offshore.

Employment (offshore and onshore) in companies wholly-related to the North Sea oil industry stood at 61,000 in December 1982, a rise of 34,000 since 1976. By June 1983, this had grown to 63,292 according to the Manpower Services Commission - with a further 4,003 employed on oil-related work in Scottish firms partly involved in North Sea activity. The rate of employment growth averaged around 20 per cent per annum in the three years after 1976 but has now slowed (apart from a sudden spurt in the second half of 1981). It was only 10 per cent in 1982.

While these increases are of considerable importance against a background of declining employment in other sectors, employment in wholly oil-related companies still involves only 3 per cent of the total number of people in work in Scotland - 4,000 fewer last year than the numbers on MSC programmes. The jobs created are also fairly localised: 73 per cent were employed in the Grampian Region, with a further 12 per cent in Highland and only 4 per cent in Strathclyde. Just over a third were employed offshore and a survey in 1979 of those working on the rigs and support vessels showed that 60 per cent came from Scotland and 33 per cent from England, only 14 per cent were from Strathclyde as against 26 per cent from Grampian.

Table 1, giving the results of a more detailed Scottish Office survey of oil-related employment carried out in 1978, shows how the industrial composition of this employment has been changing as more fields have moved into their production phase.

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</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Share</td>
<td>Change</td>
<td>Share</td>
</tr>
<tr>
<td>Oil and Gas Exploration and Production</td>
<td>9,900</td>
<td>21%</td>
<td>+3,800</td>
<td>15%</td>
</tr>
<tr>
<td>Oil-Related Manufacture of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete and Steel Platforms and Modules</td>
<td>20,800</td>
<td>43%</td>
<td>-5,700</td>
<td>64%</td>
</tr>
<tr>
<td></td>
<td>5,900</td>
<td>13%</td>
<td>-6,650</td>
<td>31%</td>
</tr>
</tbody>
</table>
Oil-Related Services 16,550 36%  +8,100 21%
Total All Industries 46,450 100%  +6,250 100%
Oil-Related Construction 3,500
Consumption Multiplier 10,000-20,000

Source: Scottish Economic Bulletin Summer 1979

The comparison with 1976 shows a major decline in the share of employment in platform and module construction (from 31 per cent in 1976 to 13 per cent in 1978) and a rise in the share of services (from 21 per cent in 1976 to 36 per cent in 1978). In numerical terms, this involved a 6,650 drop in platform construction jobs, a 53 per cent fall in two years, offset by an 8,100 rise in employment in services. The increase in services however was concentrated in Grampian, whereas the decline in platform construction hit Strathclyde and Highland particularly hard.

As well as the 35,000 then employed in companies wholly-involved in oil activity, the 1978 Survey identified 18,550 oil-related jobs in firms which were only partly involved. These figures relate to established companies i.e. those involved in long term activity, whether onshore or offshore. A further 3,500 jobs were identified on more transitory oil-related construction projects (pipe-laying, building fabrication yards, oil and gas terminals, offshore installations etc). On top of this, the 1978 Survey estimated that oil activity probably generated 10,000-20,000 further jobs in other sectors through increased consumption i.e. a multiplier effect of 1-2 extra jobs for every 5 jobs in oil-related activity.

In December 1980, McDowell and Begg estimate that as well as the 45,000 then employed in wholly oil-related companies, there were a further 17,000 jobs in oil-related construction and in partly-involved firms. This represented a rise of roughly 3,000 in these last two components over 1978, contributing to an estimated total of 65,000 oil-related jobs in 1980 (excluding the effects of the consumption multiplier).

Currently Government spokesmen talk of "around 100,000 Scottish jobs dependent on North Sea oil" but this widely quoted figure should be handled with care, particularly when making comparisons with other sectors. It would seem to include estimates of the second-round consumption effects of oil-related activity (which in the nature of things will be very approximate) and also transitory employment on oil-related construction projects. These factors add substantially to the MSC estimate for the sector itself. This currently stands at 68,000 covering those employed in established companies involved in oil-related work on a long-term basis. The total employment effects in Scotland of the oil industry are important, therefore, but the direct employment effects remain more limited and fairly localised. Moreover, they are unlikely to increase at the same rate in the immediate future since the stabilisation of production would seem to imply a stabilisation of related service activity.

(ii) Future Prospects for the Oil Industry

The present depressed state of the market for oil has meant the postponement of several development projects with consequent implications for platform construction. Although some construction work is in the offing, (the Fife construction yards have recently won some contracts and a platform order for the North Sea’s estimated to be placed by the end of the year), overall the industry is in the doldrums. Current offshore activity, according to the Scottish Economic Bulletin, reflects development decisions taken two years ago. There have been no new platform orders placed in Scotland since July 1981, and British Shipbuilders report that only 31 rigs were ordered worldwide in 1982, compared with 133 in 1981. In the first three months of 1983, only four new orders were placed worldwide.

However, an upturn in world economic activity could change the market position quite quickly, ending what OECD has called the "deceptive glut" of oil. OECD’s International Energy Agency takes the view that the present glut is a "transitory phenomenon" and, as well as pressing for further oil development, urge that "because of its relative abundance, coal deserves particular attention as an effective substitute for oil." From the mid-1980’s, stagnating production in North America, the North Sea and the Soviet Union will coincide with a sharp increase in demand for oil from Third World countries and OPEC as they industrialise and urbanise. Oil production within OECD will fall in the 1990’s unless oil from coal comes on-stream in a big way; the centrally-planned countries' surplus is forecast to disappear; and
OPEC may have "declining reserves or politically motivated low production."

As a result IEA predict "excess demand for oil of anywhere between 9 and 21 million barrels a day by the end of the century", with this shortfall translating into "significant price increases or a possible price explosion in the case of a supply disruption."

While the amount of oil required per unit of GDP has declined by 26 per cent since 1973, the Agency argues that with the fall in prices this conservation success has now given way to "complacency on the part of consumers and hesitation on the part of investors", which could aggravate the shortfall expected in the late 1980's and 1990's.[11]

The conflict between the desire of the oil firms to maximise profits and the Department of Energy's interest in maximising oil production and helping the platform construction yards is neatly illustrated by BP's recent decision to defer plans to develop their Southeast Forties field for at least a year. The Department of Energy wants maximum production, which would mean using platform technology and bring wider benefits to the Scottish economy; BP favours more limited exploitation using cheaper sub-sea templates attached to the existing Forties field.[12] Meanwhile, the Treasury is insisting on an additional sale of public shares in BP, so reducing the Government's leverage over the company still further.

The Government reportedly hopes to approve ten new developments by the end of this year to revive the flagging offshore industry. Marathon Oil announced a £1.7 billion plan in June to develop its North Brae field, but despite generous concessions to oil companies in the 1983 Budget, discussions on a number of other projects (such as Sun Oil's Balmoral field, and Shell/Esso's Southeast Indefatigable field) are reported to be in difficulties.[13]

Government concern with increasing the share of offshore supply orders going to British firms also runs counter to their intention to press ahead with further privatisation. Moral suasion to "buy British" is easily brushed aside when the choice about how to develop fields and what technology to use remains largely with the companies. US firms have kept research and development of new offshore technologies close to their chests, putting British firms at a considerable disadvantage in any kind of open competition.

Increasing access to this home market, however, is the key to Scottish firms gaining a stronger foothold in markets for offshore technology outside the North Sea. So far, though, Government has rejected on ideological grounds any action stronger than moral suasion regarding orders placed for the British sector of the North Sea. The 1977 Scottish Office survey showed that 14 per cent of oil-related industrial activity was geared to overseas markets, (Norway receiving 15 per cent of exports, the rest of Europe 24 per cent, and the rest of the World 61 per cent), but although this gives an export base to build on, the total value added through exports was only £50 million in that year.[14]

Privatisation means therefore that control over the speed of exploitation is increasingly being abdicated by Government, at a time when national interest suggests careful forward planning of oil development to cope with a shortfall in the late 1980's, and a degree of preferential treatment to maintain a British oil-related manufacturing capability during the present recession. Further development activity and new platform orders may, in consequence, have to wait until after an economic upturn and the next price explosion, rather than being commissioned in anticipation of market changes. The irony would be if future North Sea requirements had to be met from increased imports because of failure to plan the domestic supply industry during this temporary hiatus.

(iii) Downstream Development

The planned downstream development of a full-fledged petrochemical industry in Scotland was dealt a heavy blow by the Government cancellation of the proposed gas-gathering pipeline.[15] The developments currently under construction at Mossmorran in Fife and Grangemouth (on the opposite bank of the Forth) have attracted enormous amounts of Regional Development Grant automatically by sitting in a Development Area, but being highly capital-intensive, will create relatively few permanent jobs.
In the first quarter of 1982, Shell and Esso at Mossmorran were paid £19 million in RDG, and BP at Grangemouth over £2 million. Along with the BP development at Lerwick, which attracted an astonishing £92 million in RDG, these oil and petrochemical projects accounted for 61 per cent of total UK Regional Development Grant payments in that quarter. This greatly strengthens the case for some kind of cost per job ceiling on this form of regional assistance.

Downstream developments have also raised an unwelcome threat to jobs in the coal industry, already hit by recession and a high exchange rate. Gas, which in around two years will be diverted to Mossmorran, is currently being piped ashore and used temporarily for electricity generation at Peterhead power station. This results in a further displacement of coal normally required for power generation at a time when electricity demand had, in any case, slumped due to the recession and the closure of the aluminium smelter at Invergordon. Though the arrangement is temporary, for the hard-pressed Scottish pits it may mean permanent pit closures, with coal, a long-term source of cheap energy supply to the electricity industry, being sacrificed to a short-term energy expedient. This may boost the profits of the oil companies but creates few extra jobs.

In assessing the contribution of downstream developments, therefore, a full appraisal has to take account of the wider implications of displacing demand for coal, and of absorbing so much regional aid unnecessarily.

Dutch experience has also highlighted the dangers of downstream development in attracting capital resources away from traditional manufacturing industry into largely capital-intensive and energy-intensive activities. A large capital-intensive sector paying high wages can also force wage levels up in other sectors where productivity may be lower. This becomes a more serious problem if, as in Holland, a country moves towards a more centralised wage bargaining structure. Even without this, there is some evidence that pay tends to follow norms set by leading sectors.

High wages across the board are desirable and may be an important element in raising effective demand. However the problem of companies' ability to pay underlines the importance of expanding the non-oil economy to achieve higher productivity in all industries and redistributing (through taxation) the fruits of inherently high productivity sectors such as petrochemicals, so that any spread effects from these industries can be accommodated.

Macroeconomic Trends: Their Relevance to Scotland

This article is primarily concerned, however, with the macroeconomic effects of oil and the microeconomic impact these have on the non-oil economy in Scotland. These macro-effects - principally the impact on the balance of payments, the exchange rate and government revenue - apply equally to the rest of the UK. They remain central to a discussion of the Scottish economy despite that UK perspective, however, because, as Pothgill and Giddin (1982) have emphasised: "In an industrial economy, the growth of cities and regions depends first and foremost on the growth of the national economy".

To demonstrate this, they used shift-share analysis to separate out components of change in manufacturing employment for all the regions of the UK. They isolated those elements which were due to 1) national trends, 2) the structural composition of the industries represented in each region, and 3) a regional specific differential change. They then broke this residual down further into the effects of urban structure, firm size and regional policy, giving a reasonably comprehensive explanation of the various factors which interact to explain regional employment differences.

Their results for Scotland showed that over the period 1952-79, the 18.4 per cent actual decline in manufacturing employment was explained by a 7.8 per cent national decline (the largest element), a 6.8 per cent decline due to regional industrial composition, and a 3.8 per cent decline due to other factors. Since the period covered included the rundown of the coal mines and the railways in the early sixties, the apparent importance of regional industrial structure was boosted.

Their more detailed results showed, however, that the effect of industrial composition fell off sharply in most regions after the mid-sixties, and has been almost irrelevant as an explanation of unequal
growth between regions since. Over the period 1973-79, industrial structure in Scotland was responsible for a decline of only 0.3 per cent in manufacturing employment from its 1973 level (21).

Table 2 gives Fothergill and Gudgin's results for Scotland over the period 1968-75 and figures for East Anglia, the North of England and the West Midlands for comparison. It shows that overall the urban structure of Scotland has helped employment (apart from the Clydeside conurbation which confirmed their hypothesis about growth being constrained in urban locations). Regional policy was also useful at least until the second half of the 1970's:

<table>
<thead>
<tr>
<th>Employment Accounts for Manufacturing by Region 1968-75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source: Table 8.1 in Fothergill and Gudgin 1982</td>
</tr>
<tr>
<td>Over the UK as a whole they estimate that once other factors are taken into account, regional policy has generated a total of 104,000 jobs in manufacturing, of which 57,000 were in Scotland (30,000 between 1960 and 1966, 25,000 between 1966 and 1973; but only 2,000 over the period 1973-79).</td>
</tr>
<tr>
<td>The unexplained residual is particularly large in Scotland, a factor they put down to remoteness from London which has been the major source of job exports to less urbanised areas. Despite this large unexplained factor, however, the overwhelming conclusion of their work is that the so-called &quot;adverse industrial structure&quot; in Scotland is a myth, and the dominant factor explaining the poor performance of the Scottish economy in recent years has been the poor performance of the UK economy as a whole. The next section therefore looks at the role of North Sea oil in these macroeconomic changes which have had such an important influence on the regional economy.</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>National change</th>
<th>Scot</th>
<th>W.Mid.</th>
<th>Nth</th>
<th>E.Ang.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference due to:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial structure</td>
<td>-5.9%</td>
<td>+4.7%</td>
<td>-3.1%</td>
<td>+3.0%</td>
</tr>
<tr>
<td>Urban structure</td>
<td>+0.1%</td>
<td>-2.2%</td>
<td>+8.6%</td>
<td>+10.8%</td>
</tr>
<tr>
<td>Size structure</td>
<td>-0.6%</td>
<td>-1.6%</td>
<td>-4.3%</td>
<td>+1.2%</td>
</tr>
<tr>
<td>Regional policy</td>
<td>+6.5%</td>
<td>-3.6%</td>
<td>+14.1%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>(Residual)</td>
<td>-1.2%</td>
<td>+1.7%</td>
<td>-8.8%</td>
<td>+6.6%</td>
</tr>
<tr>
<td>Net change</td>
<td>-14.1%</td>
<td>-13.0%</td>
<td>+2.5%</td>
<td>+28.6%</td>
</tr>
</tbody>
</table>

The net contribution of oil to the balance of payments is calculated by deducting imports of materials, services and foreign interest, profit and dividend payments from the value of oil production.

Table 3

<table>
<thead>
<tr>
<th>Volume of Oil Production (Million tonnes), Value of Oil Production (billion), Current Balance of Payments and Contribution of Oil (billion), Effective Exchange Rates (Nominal and with without oil 1975 = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source: Economic Trends and NIESR</td>
</tr>
</tbody>
</table>

Macroeconomic Effects of Oil

(i) Output, Revenue, Balance of Payments

As pointed out above, the major output effect of oil is seen at a UK level. The same is also true of the effect on Government revenue.

In volume terms oil production has built up from around 17 million tonnes in 1976/77 to an estimated 105 million tonnes in 1982/83. At current prices this is worth £14.5 billion, and of this the Government will take roughly £8 billion in tax revenue.

According to the Budget projections, production will level off in 1984 and 1985, then drop from 1986 onwards (22). Forecasting oil revenue depends not only on production levels but also on the tax regime applied, the oil price and the exchange rate (since oil is priced in dollars). The Treasury estimates that revenue will be £8 billion in 1983/84, £8 billion in 1984/85 and £9.5 billion in 1986. (The Royal Bank of Scotland Oil Index, however, predicts that despite technical problems on some of the oilfields, the 1983/84 figure will be nearer £9 billion (23)).

The net contribution of oil to the balance of payments is calculated by deducting imports of materials, services and foreign interest, profit and dividend payments from the value of oil production.
Table 4 below details the increase in UK import penetration ratios (i.e. imports as a percentage of UK home demand) for some of the key Scottish manufacturing industries between 1976 and 1982, relating these to changes in output and employment.

Table 4

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</thead>
<tbody>
<tr>
<td>Food, Drink, Tobacco</td>
<td>13.2%</td>
<td>-6.8%</td>
<td>91</td>
<td>78</td>
<td>-14.1%</td>
<td>24</td>
<td>32</td>
<td>24</td>
<td>+8%</td>
</tr>
<tr>
<td>Metal Manufacture</td>
<td>3.9%</td>
<td>-7.2%</td>
<td>39</td>
<td>25</td>
<td>-36.1%</td>
<td>24</td>
<td>32</td>
<td>24</td>
<td>+8%</td>
</tr>
<tr>
<td>Engineering and Allied Industries</td>
<td>24.5%</td>
<td>0.0%</td>
<td>258</td>
<td>195</td>
<td>-24.4%</td>
<td>24</td>
<td>32</td>
<td>24</td>
<td>+8%</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mechanical Engineering</td>
<td>11.4%</td>
<td>-8.3%</td>
<td>(92)</td>
<td>(65)**</td>
<td>(-29%)**</td>
<td>29%</td>
<td>36%</td>
<td>29%</td>
<td>+7%</td>
</tr>
<tr>
<td>- Instrument Engineering</td>
<td></td>
<td></td>
<td>(16)</td>
<td>(15)**</td>
<td>(-7%)**</td>
<td>54%</td>
<td>62%</td>
<td>54%</td>
<td>+8%</td>
</tr>
<tr>
<td>- Electrical Engineering</td>
<td>4.8%</td>
<td>+68.0%</td>
<td>49</td>
<td>(42)**</td>
<td>(-14%)**</td>
<td>32%</td>
<td>47%</td>
<td>32%</td>
<td>-15%</td>
</tr>
<tr>
<td>- Shipbuilding</td>
<td></td>
<td></td>
<td>(42)</td>
<td>(34)**</td>
<td>(-20%)**</td>
<td>39%</td>
<td>19%</td>
<td>39%</td>
<td>-20%</td>
</tr>
<tr>
<td>- Vehicles</td>
<td>5.4%</td>
<td>-25.3%</td>
<td>(32)</td>
<td>(26)**</td>
<td>(-19%)**</td>
<td>29%</td>
<td>46%</td>
<td>29%</td>
<td>+17%</td>
</tr>
<tr>
<td>- Metal Goods excl</td>
<td>2.9%</td>
<td>-38.4%</td>
<td>27</td>
<td>(21)**</td>
<td>(-23%)**</td>
<td>11%</td>
<td>16%</td>
<td>11%</td>
<td>+5%</td>
</tr>
<tr>
<td>Textiles, Clothing and Footwear</td>
<td>6.6%</td>
<td>-18.3%</td>
<td>91</td>
<td>61</td>
<td>-33.8%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Textiles</td>
<td></td>
<td></td>
<td>(57)</td>
<td>(41)**</td>
<td>(-28%)**</td>
<td>26%</td>
<td>41%</td>
<td>26%</td>
<td>+15%</td>
</tr>
<tr>
<td>- Clothing and Footwear</td>
<td></td>
<td></td>
<td>(33)</td>
<td>(25)**</td>
<td>(-24%)**</td>
<td>26%</td>
<td>36%</td>
<td>26%</td>
<td>+16%</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>18.8%</td>
<td>-17.5%</td>
<td>90</td>
<td>76</td>
<td>-22.4%</td>
<td>15%</td>
<td>25%</td>
<td>15%</td>
<td>+10%</td>
</tr>
<tr>
<td>TOTAL MANUFACTURING</td>
<td>64.7%</td>
<td>-7.1%</td>
<td>688</td>
<td>463</td>
<td>-23.8%</td>
<td>23%</td>
<td>29%</td>
<td>23%</td>
<td>+6%</td>
</tr>
</tbody>
</table>

Sources: Scottish Economic Bulletin, CSO

Footnotes: * Weight = % of Scottish Ind Prod ** Figs in brackets for Sep 1981
Total manufacturing output – which made up 27 per cent of Scottish Gross Domestic Product in 1975 – declined by just over 7 per cent between 1976 and 1982, ending the period as 23 per cent of GDP. This was a substantial drop historically, but still much smaller than the 13 per cent fall in manufacturing output in the UK as a whole.

This difference between Scotland and the UK is largely explained by the relatively stronger performance of the engineering sector north of the border. This in turn reflects the lower weight given to the hard-hit vehicles sub-sector in Scottish output and the phenomenal rise in the output of the Scottish electronics industry. Overall engineering output remained static in Scotland, with a 60 per cent rise in electronics output offsetting sharp declines in mechanical engineering (down 8 per cent), vehicles and shipbuilding (down 25 per cent), and metal goods (down 38 per cent).

The decline in manufacturing employment over the period was much larger, however – down 24 per cent in Scotland compared with 21 per cent in the UK, representing a loss of 145,000 jobs. This difference between output trends and employment trends is important given the significance being attached by policy-makers to the growth of the electronics sector, where although output grew substantially, employment was 7,000 lower in 1981 than in 1976.

It should be emphasised straight away that this process of de-industrialisation began well before 1976. There were, for example, 118,000 fewer jobs in manufacturing in Scotland in 1976 than a decade earlier. Similarly, the UK share in world markets for manufactures has been eroding steadily over the last twenty years, dropping from 12.7 per cent in 1960 to 6.8 per cent in 1988. This was cushioned up until 1973 by a high rate of growth of world trade of 9-10 per cent per annum, but thereafter this slowed to between 2 and 3 per cent per annum. The rising trend of import penetration has also been a long-term, if initially stealthy, process: the foreign share of the UK market for manufactures was 14.5 per cent in 1963 compared with 28.7 per cent in 1982.

It will be argued below that this decline in competitiveness has a great deal to do with non-price factors such as product design, quality, reliability, and delivery dates. These have been adversely affected along with productivity by the slow growth of demand in Britain, and the slow rate of investment which follows from that. But price is also a factor, and one which is directly affected by the exchange rate and hence by the impact of oil on the balance of payments.

(iii) Oil and the Exchange Rate

A careful study of the short-run macroeconomic effects of oil on the exchange rate and the wider economy was conducted in 1983 by Atkinson, Brooks and Hall of the National Institute of Economic and Social Research using a revised version of the National Institute model of the UK economy (25).

They first carried out a partial equilibrium analysis to estimate the respective contributions of 1) relative interest rates, 2) the current balance of payments (including the oil component of the current balance) and 3) the stock of oil to determination of the effective exchange rate.

Oil affects the exchange rate directly through its contribution to the current balance, but also through expectations of its future effect on the current balance. The impact of expectations can be modelled by incorporating a term for the value of oil stocks in the exchange rate equation. This also allows for future changes in the growth of reserves and revaluation of stocks as the oil price changes.

Their estimation of the effective rate in the absence of North Sea oil is given in Table 3. The expectations effect helps explain why the exchange rate started rising in 1979 when the current balance was still in deficit. For 1982, oil contributed 24.1 points to the effective rate of 98.7 through its effect on the current balance, and 9.8 through the influence of oil reserves. In comparison, relative interest rates contributed only 0.9 of a point. The NIESR team conclude that "adding the current balance effect to the expectations effect produces the estimate that by 1982 the direct impact of oil was over 35 per cent of the actual exchange rate, or 60 per cent of the rate 'without' oil".

They immediately, however, sound a note of caution, pointing out
that "The complexity of the mutual interactions between the exchange rate, the balance of payments, prices and interest rates can only be studied in the context of a complete model of the economy".

Some of the results of their simulations using the National Institute model to compare history with a counter-factual case of the UK economy without oil are shown in Table 5. A second counter-factual simulation assuming that the government had used oil revenue to adopt a laxer fiscal policy is also included.

**TABLE 5**

**NIESR SIMULATION RESULTS FOR 1982 WITH AND WITHOUT OIL AND AN EASIER FISCAL POLICY**

<table>
<thead>
<tr>
<th></th>
<th>History</th>
<th>Without Oil</th>
<th>With Oil/Easier Fiscal Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross Domestic Product</strong> (1975 = 100)</td>
<td>105.8</td>
<td>100.1</td>
<td>100.8</td>
</tr>
<tr>
<td><strong>Manufacturing Output</strong> (1975 = 100)</td>
<td>88.3</td>
<td>84.0</td>
<td>90.0</td>
</tr>
<tr>
<td><strong>Exports</strong> (1975 prices, £mill)</td>
<td>32,500</td>
<td>30,450</td>
<td>32,950</td>
</tr>
<tr>
<td><strong>Imports</strong> (1975 prices, £mill)</td>
<td>35,550</td>
<td>34,850</td>
<td>37,100</td>
</tr>
<tr>
<td><strong>Consumer Expenditure</strong> (1975 prices, £mill)</td>
<td>72,650</td>
<td>69,200</td>
<td>74,500</td>
</tr>
<tr>
<td><strong>Effective Exchange Rate</strong> (1975 = 100)</td>
<td>90.7</td>
<td>78.3</td>
<td>82.8</td>
</tr>
<tr>
<td><strong>Current Balance</strong> (£billion)</td>
<td>3.9</td>
<td>-5.8</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Consumer Price Increase</strong></td>
<td>8.1%</td>
<td>9.1%</td>
<td>10.4%</td>
</tr>
<tr>
<td><strong>Public Sector Borrowing Requirement</strong> (82/83 £bn)</td>
<td>9.2</td>
<td>25.4</td>
<td>13.4</td>
</tr>
<tr>
<td><strong>Unemployment</strong> (4thQ, UK excl. school-leavers mill)</td>
<td>2.9</td>
<td>3.6</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source: Extracted from Atkinson, Brooks and Hall, National Institute Economic Review May 1983

The most striking conclusion of their 'without-oil' simulation is that both non-oil output and manufacturing output would have been slightly lower, "the effect of more depressed domestic demand outweighing higher non-oil exports and lower non-oil imports".

As expected, the exchange rate would have been lower without oil, but not by as much as was suggested by the partial equilibrium analysis above. Using the complete model for estimation and thus taking full account of "the mutual interactions between the exchange rate, the balance of payments, prices and interest rates", the effective exchange rate without oil is estimated at 78.3 in 1982. This is a good bit higher than suggested by the partial equilibrium analysis, but still 14 per cent lower than the actual rate with oil.

However, the effect of the lower exchange rate in stimulating exports and non-oil output is more than offset by the effect of higher import prices in depressing consumption. The 1 per cent increase in inflation which would come with a lower exchange rate cuts the real purchasing power of incomes, reducing consumer expenditure by £3.5 billion. It is this fall in domestic expenditure which largely explains why, without oil, manufacturing output would be 5 per cent lower and unemployment 700,000 higher despite improved price-competitiveness.

In addition, the loss of oil exports would have more than offset the improvement in non-oil exports, so that the balance of payments would have moved into substantial deficit; and without oil revenue, the public sector borrowing requirement would have risen from £9 billion to £25 billion. Atkinson et al conclude, therefore, that with oil Britain is "unequivocally better off".

That overall verdict does not necessarily hold for each individual industry, region or section of society. Firms geared to manufacturing exports may not necessarily be well placed to take advantage of the higher domestic demand stimulated by increased consumption at home; other sectors may go under due to greater competition from cheap imports, or have their profit margins squeezed to such an extent that their long-term viability is undermined through cutbacks in investment. Similarly, those in work or with a particular
pattern of consumption may benefit more from a reduction in inflation than other groups such as the low paid and unemployed.

As well as saying little about the distribution of the benefits of oil, the results also hinge on the structural characteristics of the economic model chosen for the simulation. A review of the major models (including an earlier version of the NIESR model) carried out by Professor Artis for the Bank of England showed how the impact of various factors may differ substantially even between models regarded as broadly similar in construction(26). One such area of controversy between modellers has been over how strong the effect of a rise in the exchange rate is in reducing inflation and stimulating consumer spending. This link can be affected by many factors - including, for example, whether importers pass on price changes to the consumer or adjust their margins - and there is some evidence in Artis to show that the connection is perhaps stronger in the NIESR model than in some other equally reputable models. Any weakening of this effect would probably reduce the estimated benefits from oil.

The results reported also depend crucially on the price-elasticities (or price-responsiveness) of the trade equations in the National Institute model. The consensus appears to be that these elasticities are low in the UK. In the NIESR model, for example, a 10 per cent improvement in the relative price of manufactured exports leads to only a 5 per cent rise in volume, given world trade, and it takes two years for the effect of changes in competitiveness on export volumes to work through in full. More seriously, perhaps, a 10 per cent rise in the price of imports leads to a mere 3 per cent reduction in volume. Imports in particular are therefore very price-inelastic, so that the effect of higher import prices on inflation following a devaluation would appear to be fairly strong in this model.

Determinants of Competitiveness

These low price elasticities, applying equally to Scotland, underline the importance of non-price factors (product design, quality, reliability etc.) in determining trade-competitiveness. However, it is a mistake to cite Britain's poor performance in this area as further evidence that we have permanently lost our comparative advantage as a manufacturing nation, and should consequently try specialising in something else.

Improvements in non-price factors (as well as lower prices) depend to a large extent on a high rate of growth of productivity. In a comparative study of twelve capitalist countries (including the UK), Cripps and Tarling(27) showed that the principal determinant of productivity growth is the rate of growth of demand, thus confirming empirically a proposition expounded by economists from Adam Smith in the 18th Century to Nicholas Kaldor in the 1960's(28). And because of the greater scope for productivity gains in manufacturing, the rate of growth of that sector emerged as the key determinant of the overall rate of growth in the countries considered in the study.

Useful confirmation that these "laws of productivity" can be generalised to cover even "declining industries" in Scotland comes from a surprising source. Adding his support to union claims on the efficiency of Ravenscraig, Secretary of State George Younger acknowledged that the recent "remarkable" performance of the steel plant had been "greatly helped by the fact that it has been fully loaded"(29).

In principle, it is a small step from realising that productivity and performance in a single steel plant depends on how fully it is utilised to asking what a similar increase in "loading" might do for the efficiency of the whole Scottish economy. Or asking what effect new investment might have on the efficiency of the so-called "sunset industries".

A fast rate of growth of output resulting from growth of demand leads to economies of specialisation and large-scale production (as with Adam Smith's pinmakers or Ravenscraig). It also acts as a stimulus to new investment and product innovation. All of these factors normally improve productivity and lower costs. By improving competitiveness, they should lead to further demand for the product (which may in turn induce greater gains in efficiency). As John Eatwell has put it: "Demand determines competitiveness determines demand"(30), a principle of cumulative causation which can make a substantial contribution to reversing industrial decline.
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substantial contribution to reversing industrial decline.

In a mixed economy, there may be some leakage from this
cumulative process in any individual region if the jobs created by
regional productivity gains and greater specialisation fall outside
the region. This may be a particular problem in Scotland where there
is a high degree of external ownership. However, the jobs shed on the
swings may be gained on the roundabouts from other regions as they
expand. Redistribution will be helped by a strong regional policy
which, as well as assisting depressed regions, helps avoid overheating
during an expansion in regions which are closer to full employment. It
should be noted, however, that regional policy which redistributes
growth in this way only works well during a period of expansion. One
of the reasons why regional policy has been ineffective recently is
that there is tremendous resistance to job export and redistribution
from other regions of the UK when even relatively prosperous areas are
suffering high levels of unemployment.

To break into this chain of causation, however, Scotland and the
rest of the UK first need the type of sustained economic expansion and
industrial planning which is familiar in Japan and West Germany, but
is the complete antithesis of the deflationary free enterprise
policies currently being pursued in Britain.

Moreover, instead of dividing economic activity into "sunrise"
industries and "sunset" industries, it would be more profitable to
draw lessons from the debate that took place in Japan in 1949 over
that country's future industrialisation. The Governor of the Bank of
Japan, a certain Mr Ichimada, took the classical, static (and as it
turned out totally wrong) comparative advantage view of
competitiveness, arguing that: "since Japan should develop its foreign
trade on the basis of the international division of labour, efforts to
develop the automobile industry will be futile."

In contrast, the Ministry of International Trade and Industry
(MITI) argued that: "since the development of the automobile industry
to a high level will lead to the modernisation of the machinery
industry, and, consequently, all other industries, it is desirable to
concentrate all possible efforts on raising its productivity and
international competitiveness so that it can catch up with other
advanced countries."(31). This is of course, what the Japanese decided
to do, using a protectionist trade policy and a captive home market
along with a highly interventionist system of industrial licensing to build up their manufacturing industry and secure the productivity growth necessary to export successfully.

It is important to note, too, the emphasis given to linkages between different parts of the economy in the MITI quote, and how expansion of one sector can lead to increased efficiency and productivity gains in other industries supplying inputs. This integrated approach stands in sharp contrast to current Scottish Office practice, when decisions seem to be taken (on Linwood, Invergordon, Ravenscraig etc.) without due regard to the efficiency implications for other sectors of the economy. Often it is left to local councils to spell out these connections - which is ironic given that most of the applied economic research done in Scotland in the 1970's (by the Fraser of Allander Institute, and the Scottish Council with Scottish Office co-operation) has been on quantifying these inter-industry linkages between inputs and outputs.

Using Oil For Economic Expansion

Previously one of the major factors which in Britain prevented the type of sustained expansion necessary to restore industrial efficiency was the balance of payments constraint. This was combined with a foolish characterisation of protection as something wicked and deflationary, even when modern protectionist strategies (such as that advocated by the Cambridge Economic Policy Group) aim to use planned trade in conjunction with an interventionist industrial policy as a means of modernising manufacturing industry and raising economic activity. This is in sharp contrast to the type of beggar-my-neighbour protectionism practised in the Thirties.

Recently CEPG economists have begun to emphasise that the problems of recession are so deep-seated that even planned trade and expansion in one country (far less one region) will only have limited impact on unemployment without a co-ordinated expansion of European and world demand. Such a strategy would also need a policy to stabilise raw material and energy prices during the collective reflation if price explosions are not to threaten the recovery, but this is perfectly feasible if Governments have the will and foresight to organise it.

Even without protection and world expansion, however, the NIESR simulations show that oil revenue could have been used for domestic expansion rather than being used to reduce the PSBR and pay for unemployment. Table 5 shows that with an easier fiscal policy, oil would have allowed Britain in 1982 to have had higher GDP, higher manufacturing output, higher consumer spending, and nearly half a million fewer people unemployed. There would still have been an adequate surplus on the balance of payments, and inflation would have been just over 2 per cent higher.

There is no regional breakdown of this NIESR simulation to show what an easier fiscal policy would have meant specifically for Scotland. Scotland has certainly experienced a lower rate of job loss over the last 10 years than other parts of the UK, with a faster than average growth of services offsetting the sharper decline in the manufacturing sector (which now provides less than a quarter of the jobs in Scotland).

Unfortunately, however, this better than average employment performance coincided with a very fast natural increase in the Scottish labour force and rising participation rates as female employment grew. A further problem was the dominance of the Clydeside conurbation where employment growth was severely constrained.

The combination of these factors led to high unemployment during the 1970's and substantial outmigration. Net migration totalled 178,000 between 1965 and 1973, and an additional 154,000 between 1973 and 1981. A natural increase of 290,000 offset this outmigration and that the working age population in Scotland grew by 136,000 between 1973 and 1981.

According to the CEPG, a 9.5 per cent natural increase in the labour force, a 2.9 per cent increase in participation, and a 4.2 per cent drop in employment (including self-employment) led to an employment shortfall of 16.6 per cent in Scotland in 1981 relative to 1973. This shortfall expressed itself as a 7.9 per cent rise in registered unemployment, net emigration of 5.2 per cent, and a 2.9 per cent rise in unregistered unemployment (all percentages of the 1973 labour force).
Some indication of how bleak the future is for the Scottish economy if present policies continue, and how using oil to pursue alternative strategies could mitigate that disaster can be seen from Table 6. This extracts from the regional forecasts of the CEPG model.

### Table 6

**CEPG PROJECTIONS FOR SCOTLAND IN 1991 ASSUMING CONTINUATION OF CURRENT POLICIES, A CONVENTIONAL RELATION, AND ALTERNATIVE ECONOMIC STRATEGY WITH A STRONG REGIONAL POLICY**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMPLOYMENT (000)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inc self-emp</td>
<td>2,119</td>
<td>1,874</td>
<td>2,063</td>
<td>2,225</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agric and Mining</td>
<td>113</td>
<td>110</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>498</td>
<td>332</td>
<td>401</td>
<td>442</td>
</tr>
<tr>
<td>Gov't Services</td>
<td>486</td>
<td>464</td>
<td>560</td>
<td>587</td>
</tr>
<tr>
<td>Other Services and Construction</td>
<td>1,822</td>
<td>968</td>
<td>991</td>
<td>1,086</td>
</tr>
<tr>
<td><strong>UNEMPLOYMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level (000)</td>
<td>292</td>
<td>478</td>
<td>347</td>
<td>231</td>
</tr>
<tr>
<td>Rate*</td>
<td>12.1%</td>
<td>20.3%</td>
<td>14.4%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Deviation from UK (percent points)</td>
<td>2.3</td>
<td>3.2</td>
<td>2.1</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>CHANGE IN WORKING AGE POPULATION (000)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Migration</td>
<td>-</td>
<td>-291</td>
<td>-274</td>
<td>-282</td>
</tr>
<tr>
<td>Natural Increase</td>
<td>-</td>
<td>237</td>
<td>239</td>
<td>240</td>
</tr>
<tr>
<td>Total Change</td>
<td>-</td>
<td>-54</td>
<td>-35</td>
<td>-42</td>
</tr>
<tr>
<td>Participation Rate</td>
<td>75.5%</td>
<td>74.9%</td>
<td>76.2%</td>
<td>77.8%</td>
</tr>
<tr>
<td><strong>WORKING AGE POP (000)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(after migrat)</td>
<td>3,196</td>
<td>3,143</td>
<td>3,162</td>
<td>3,155</td>
</tr>
<tr>
<td><strong>LABOUR FORCE</strong></td>
<td>2,413</td>
<td>2,354</td>
<td>2,489</td>
<td>2,455</td>
</tr>
<tr>
<td><strong>TOTAL POPULATION</strong></td>
<td>5,145</td>
<td>4,962</td>
<td>4,995</td>
<td>4,986</td>
</tr>
</tbody>
</table>


* As percentage of total labour force (including self-employed)

Of course these projections (which were made in December 1982) should not be taken too literally, and the same caveats about economic models which were mentioned when discussing the NIESR model apply a fortiori to the Cambridge Model. But the demographic basis of the projections is fairly reliable, and the overriding message is clear: that even with a major change in economic policy and the use to which oil revenue is put, Scotland's economic position will still be very serious at the end of the decade unless there is an upturn in world trade as well. Particularly disturbing is the realisation that outmigration will be substantial under all three scenarios unless a radical dirigiste regional planning policy is adopted to redistribute employment growth.

**Why Manufacturing Matters in Scotland**

It is important to be clear that recovery will to a large extent depend on a healthy manufacturing sector, even if manufacturing employment may not itself grow substantially in Scotland.

The scope for productivity gains in manufacturing is one reason why this sector has a key role in any growing economy. The potential for productivity growth in the service sector (though hard to measure accurately) has so far proved more limited, with improvements in the standard of service provision (in health, education etc) coming from increases in staffing levels. This is part of the explanation why employment in the service sector has grown more rapidly than manufacturing employment.

A second reason for the special role of manufacturing at a macro-level is its importance to the balance of payments as the major long-term source of tradeable goods, and hence of foreign exchange. Because
of the scope for productivity gains, this is a source of foreign exchange that has the potential to grow over time. Ajit Singh has defined de-industrialisation as the absence of an 'efficient' manufacturing sector i.e. one which "currently as well as potentially, not only satisfied the demands of consumers at home, but is also able to sell enough of its products to pay for the nation's import requirements .... at socially acceptable levels of output, employment and the exchange rate."

For a while during the Seventies, oil was able to fulfil a similar role as far as the balance of payments was concerned (though not allowing, perhaps, a socially acceptable level of output or employment). The increasing difficulty of the UK manufacturing sector in performing this function because it had slipped into a declining spiral of reduced competitiveness (lack of demand leading to reduced competitiveness leading to further reductions in demand etc.), meant that North Sea oil was a godsend. The growth in foreign exchange from oil offset for a while the adverse trends in manufacturing trade, allowing a modest rise in consumption without provoking a balance of payments crisis. But now that oil production has peaked, and oil income has stopped growing, the problem of continuing deterioration in non-oil trade will re-assert itself unless progressive escalation of the oil price can make up for the stagnation in production, or an attempt is made to reverse the trends in manufacturing performance.

Manufacturing plays a similar and equally important role in the regional "balance of payments". Fothergill and Gudgin draw a useful distinction between "basic" industries and "dependent" industries. "Basic" industries are those which bring income into an area, and "dependent" industries are those which rely on local markets and local population needs.

In the main, manufacturing is "basic", exporting much of its output outside the region, and the service sector is "dependent", serving local needs, though the division is not absolute. Using the 1973 Input Output tables, they show that a small proportion of the Scottish service sector is "basic" i.e. supported by demand from outside the region, and that roughly a third of Scottish manufacturing was dependent on local markets (38). Because of remoteness, this proportion is probably slightly higher in Scotland than in other regions of the UK. Morag Lamont and M Cox of the Scottish Council Research Institute have shown that in 1979, 77 per cent of the sales of large manufacturing companies and 68 per cent of the sales of small firms were exported outside the region (39).

Fothergill and Gudgin point out that the 1973 figures indicate that for every eight "basic" jobs in manufacturing in Scotland, there are two "basic" service jobs, and a further four "dependent" jobs in manufacturing, so that: "for every ten basic jobs lost, we would expect, in the long run a further four manufacturing jobs to disappear because of second-round effects. The adjustment will occur partly by reducing the demand for locally manufactured inputs for basic industries, partly through a reduction in local incomes and partly because a fall in basic employment will encourage outmigration. The last of these adjustment processes, a loss of population and the consequent contraction in local markets, will of course take a long time to work itself out to its full extent." (40)

The corresponding fall in dependent service employment resulting from this contraction in basic jobs may take longer still, because public services, at any rate, are related to population levels and can continue to be financed out of central government transfers. In the long run, however, outmigration will lead to a rundown in public service provision and a general deterioration in the region's prosperity.

The recent growth in service sector employment in Scotland has nevertheless led some people to argue that somehow this can become a substitute for a healthy manufacturing sector. This view fails to recognise the "basic"/"dependent" dichotomy, and closer inspection of where this service growth has come from shows how misleading this view is.

The share of the service sector in Scottish GDP has grown from 46 per cent in 1966 to 54 per cent in 1981. Over the same period service sector employment has risen from 1.844 million in 1966 (49 per cent of employees) to 1.224 million (63 per cent of employees) in 1982. There was therefore an increase of employment in this sector of 135,000 between 1966 and 1976, and a 45,000 increase between 1976 and 1982. Public service employment grew by 28 per cent between 1965
and 1973; and 15 per cent between 1973 and 1981. Private services, which had fallen by 2 per cent between 1965 and 1973, grew by 18 per cent between 1973 and 1981. According to CEPG, between 1965 and 1981, private services in Scotland grew by 7 per cent more than would have been expected purely on the basis of population growth (partly due no doubt to North Sea activity). Government services grew by 11 per cent more than expected.

Nevertheless, a breakdown of service employment clearly shows the dependent nature of most of it. 39 per cent of service employment in Scotland is in the health and education sectors; 29 per cent is in distributive trades; 20 per cent is in public administration; 18.5 per cent transport and communications; and only 7 per cent in insurance and banking (one of the few exportable service areas). The growth in service employment has also slowed up sharply. Between 1979 and 1981, public service employment only grew by 2 per cent; and employment in private services actually fell by 4 per cent.

These trends can be expected to continue under the impact of further public expenditure cuts, and with new technology just beginning to make an impact on employment levels in areas like banking. It is worth noting that the Royal Bank's recently announced merger with their English subsidiary included a package of rationalisation, new technology, and redundancies. Moreover, revised census figures suggest that much of the rise in service employment takes the form of part-time jobs, often poorly paid. This is becoming more common in other sectors as well. The census shows that between 1978 and 1981, while male employment fell by 91,000 (down 7.5 per cent) and full-time female employment fell by 26,000 (down 4.5 per cent), part-time female employment in Scotland rose by 19,600 (up 6 per cent).

Reservations have also to be entered regarding the growing emphasis on high technology industries (such as electronics, advanced information technology, and biotechnology). The Scottish Development Agency has been doing much to promote developments in these areas, despite Government's failure to implement properly the recommendations of the Alvey Commission on Advanced Information Technology, university cutbacks, inadequate tariff protection for electronics, and the absence of a favourable economic climate for these industries to flourish in.

However, it is dangerous to imagine that even without these handicaps promotion of high-tech industries could by itself represent a total industrial strategy, or justify neglecting more conventional sectors of manufacturing industry. Because they are knowledge-intensive for the most part, these industries raise many questions about income and employment distribution, and bring problems of control and employment stability. It has already been noted how electronics employs few people in relation to output, and this is even more true of biotechnology. Those who are employed in high-tech industries tend to fall into two categories - the elite scientists who possess property rights over the knowledge, are potentially highly mobile, and (despite being trained at taxpayers' expense) stand to make vast individual fortunes; and lower-skilled employees, often in sub-contracting firms, doing assembly work or production in an intensely competitive, fast-moving technological environment.

The recent saga of Timex in Dundee and their relationships with Sinclair Electronics, Hinsalo and their own American/Norwegian parent company illustrates many of the pitfalls. Product market conditions and the forms of production organisation adopted often result in job insecurity in the sub-contract firms, with the constant threat of switching production elsewhere if there is any industrial trouble or pressure for better conditions of employment. Technological dualism can therefore open up amongst those employed in these new industries, as well as between these industries and more traditional firms which the Government seems prepared to see supplanted. This is on top of the growing gulf between those in work and those unemployed, and the distributional problems that are posed by such a shrinkage in traditional employment opportunities.

Properly controlled high-technology firms have an important part to play in Scotland's industrial renaissance, but they must be only one part of a broader, more balanced industrial structure in which modernised manufacturing industry in more conventional sectors will retain an important place. North Sea oil wealth, if wisely used in the years that are left, could help bring about that renaissance, but with current policies we are in serious danger of wrecking the Scottish
economy rather than saving it.

References


13. Ibid.


15. For a more detailed review of this sector see J C B Cooper, "The Chemical Industry", Quarterly Economic Commentary November 1982, Fraser of Allander Institute.

16. British Business, May 6-12 1983. The local impact of regional policy in oil-affected areas is also considered in McDowall and Begg (op. cit.)

17. Andrew Hargrave picks up this point in The Scotsman Supplement on Peterhead Power Station, August 15th, 1983.


21. The irrelevance of industrial structure was confirmed by the results for the fastest growing regions such as East Anglia and the South West. The main difference there came from other factors, principally the room for expansion provided by the lack of urbanisation - the floorspace requirements of modern manufacturing firms have increased considerably - and their proximity to a constrained location (London) which was having to decant new jobs.


23. Royal Bank of Scotland Oil Index, July and August 1983.

24. Real Effective Rate as calculated by NIESR (op.cit.); the real effective exchange rate is the trade-weighted rate against a basket of currencies of trading partners after allowing for differences between the rate of increase of wholesale prices in Britain and the rate of wholesale price inflation in these partner countries (see Ch 19, Dornbusch and Fischer, Macroeconomics, McGraw Hill 1981)


31. Both Ichimada and MITI are quoted in Eatwell's highly recommended book (op.cit.).

32. See in particular Francis Cripps and Terry Ward, "Government Policies, European Recession and Problems of Recovery", Cambridge Journal of Economics, 1983. They write: "A single European country pursuing unilateral reflation would on our estimates typically lose about 0.5 per cent of GDP on its balance of trade for each 1 per cent gain to its own production and income. In contrast, if all governments..."
in Western Europe engaged in joint reflation, each 1 per cent gain in income might involve on average as little as a 0.2 per cent deterioration in their countries' trade balances, and they would stand to recoup about three-quarters of the initial budgetary costs through higher tax receipts”.


34. Some ideas on how to approach this problem were put forward by Nicholas Kaldor in his Presidential Address to the Royal Economic Society, Economic Journal 1976.


36. This compared with a 4.4 per cent natural increase in the labour force in the UK as a whole, a 1.0 per cent estimated increase in participation, a 6.2 per cent fall in employment and self-employment, making up a UK employment shortfall of 11.6 per cent in 1981 relative to 1973. This manifested itself as a 7.6 per cent rise in registered unemployment, a 0.8 per cent rise in net emigration, and a 3.2 per cent rise in unregistered unemployment. (Source: CEPG).


40. Fothergill and Gudgin (op.cit.)

41. SEB No. 27, 1983.


44. See for example, Craig, Rubery, Tarling, Wilkinson The Effects of the Abolition of Wages Councils: Final Report to the Department of Employment, Department of Applied Economics, Cambridge (mimeo), October 1979.

45. SEB No.27, 1983.


47. See Robbie Dinwoodie’s articles "The Day That Time Ran Out For Timex", and "How Nimslo Used Dundee to Perfect 3-D Camera", in The Scotsman, January 11th and 12th 1983.